



United States Department of Agriculture
Forest Service

National Forests in Florida Revised Land and Resource Management Plan Amendment to reassign Management Areas on the Ocala National Forest (Amendment 12)

Draft Environmental Assessment and Draft Finding of No Significant Impact

National Forests in Florida
Ocala National Forest
Lake, Marion and Putnam Counties, FL

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1. INTRODUCTION

The U.S. Forest Service has prepared this draft environmental assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant laws, regulations and agency policies. The contents of this EA and the process for public involvement follow Council on Environmental Quality and US Forest Service regulations (40 CFR 1500-1508, 36 CFR 219 and 220) as well as guidance in the Forest Service Handbooks for forest planning and NEPA analysis (FSH 1909.12 and 1909.15, respectively).

This EA describes the current management situation and status of forest resources, identifies the need for action, presents the proposed action and discloses the potential environmental impacts of the alternatives. Based on this analysis, this document also includes a draft Finding of No Significant Impact. Additional information is available on the project website (<http://goo.gl/1Ze7Xg>) or upon request from the National Forests in Florida Supervisor's Office in Tallahassee, Florida.

Background

Most of the background material for this proposal has been modified from a landscape scale assessment of scrub habitat on the Ocala National Forest that was conducted by National Forests in Florida staff in fall 2015. The full assessment is available on the project website as supporting information.

Florida scrub and Florida scrub-jays - Florida scrub is an imperiled plant community characterized by a distinctive suite of species and vegetation structure (Figure 1) that occurs on current or ancient coastal sand ridges. Although the relative abundance typical species varies due to abiotic factors and site history, scrub generally includes shrubby evergreen oaks (Chapman's oak, myrtle oak, sand live oak and scrub oak), saw palmetto, Florida rosemary, several habitat-specific shrubs and small trees, and a sparse cover of herbs and lichens with little grass. Sand pine (*Pinus clausa*) or south Florida slash pine (*Pinus elliotii* var. *densa*) is often present in the canopy layer with density varying according to site history and soil productivity. Additionally, many rare species occur in Florida scrub, including eastern indigo snake, sand skink, Florida bonamia, scrub pigeonwing, scrub lizard, short-tailed snake, eastern diamondback rattlesnake, gopher tortoise and southeastern kestrel. Bare sand is common in most high-quality scrub habitats but decreases with vegetation

succession and litter accumulation following the most recent fire. In a thorough description of scrub systems, Myers (1990) emphasized that scrub habitats are maintained by fire, with relatively infrequent 10-100 year interval), high-intensity fires required to regenerate scrub vegetation. More detailed information about Florida scrub may be found in the Ecosystems of Florida (Myers 1990) and in the Florida Natural Areas Inventory (FNAI) Guide to the Natural Communities of Florida (FNAI 2010, available at http://fnai.org/PDF/NC/Scrub_Final_2010.pdf).

The Ocala National Forest (ONF) includes approximately 226,000 acres of scrub habitat within its boundaries, with most this unique ecosystem occurring in one contiguous block. This area, often called the Big Scrub, is by far the largest extant area of Florida scrub habitat. We conducted an assessment of scrub habitat conditions and management in the ONF in 2015 and the resulting report is available as supporting information for this EA at <http://goo.gl/1Ze7Xg>.



Figure 1. High-quality open scrub in Ocala National Forest (photo Jay Garcia).

The Florida scrub-jay (*Aphelocoma coerulescens*; Figure 2) is the only bird species endemic to Florida, where its distribution is largely limited to open scrub

across the southern part of the state. The Florida scrub-jay was listed as a threatened species by the U.S. Fish & Wildlife Service in 1987 due to significant population declines resulting from habitat loss from development and agriculture, habitat degradation (largely resulting from fire suppression), and the habitat fragmentation resulting from these processes (USFWS 1990, 1999). A recent state-wide survey and comparison to historical data found continued declines in Florida scrub-jays, with a reduction of over 25% on conservation lands from 1993 to 2011 (Boughton and Bowman 2011). Based on population status and demographic modeling, only three sites (Merritt Island/Cape Canaveral, Archbold Biological Station and the ONF) are thought to have sufficient habitat and sufficient numbers of groups for long-term scrub-jay persistence (USFWS 2007). Of these, the ONF is the largest and provides habitat for the largest Florida scrub-jay population, with the recent population estimates of 1,100-1,250 family groups (based on results in Miller 2015). The USFWS is currently revising the Florida scrub-jay recovery plan, and the proposed action below was developed in close coordination with the USFWS and in consultation with other members of the recovery plan team.

Suitable Florida scrub-jay habitat is generally characterized by shrub layer heights ranging from 1 to 3 meters (3.2-9.8 ft.) tall, numerous patches of open bare ground, and low levels of pine cover (Fitzpatrick et al. 1991, Woolfenden and Fitzpatrick 1991). Optimal scrub-jay breeding habitat is dominated by scrub oaks from 3 to 6 feet tall covering 50-90 percent of the area; bare ground or sparse vegetation covering 10-50 percent of the area; and scattered larger trees, with no more than about 20 percent canopy cover and usually much less (Breininger 1992; USFWS 1990, 1999). Shrub layer height is a key indicator for land managers to identify scrub habitat that is waning in habitat quality and in need of treatment to reset succession; habitat taller than 3 meters has been associated with lower territory densities and decreased fledgling production and survival as compared to habitat with shrub layer heights less than 3 meters (Woolfenden and Fitzpatrick 1991).

Florida scrub jays are territorial and breed cooperatively, with a breeding pair and helpers defending approximately 25 acres of habitat (Miller 2015; USFWS 1990, 1999). Primary food sources on the ONF include acorns, palmetto berries, blueberries, lizards, and insects. Scrub oaks resprout quickly after fire or harvest, and start producing acorns within a few years and produce the most abundant acorn crops in stands aged 3 to 7 years. Acorn production is higher in stands with sparse sand pine and can be a year-round food source if adequate supplies are cached in open sandy areas interspersed among the shrubs. Soft mast (fruits and berries) and insects are important seasonal foods.



Figure 2. Florida scrub-jay in Ocala National Forest (photo by Carrie Sekerak).

Forest plan direction - The 1999 Land and Resource Management Plan for the National Forests in Florida (USDA 1999a, referred to as the forest plan) and relevant forest plan amendments provide management direction for the ONF. Several forest plan goals and objectives are directly related to scrub management (USDA 1999a, p. 2.4-2.5):

Goal 6. Maintain, or where necessary, restore ecosystem composition, structure, and function within the natural range of variability in all ecosystems, with emphasis on longleaf-pine wiregrass, sand pine-oak

scrub, pine flatwoods, hardwood/cypress, oak hammock ecosystems, and other imperiled specialized communities.

Goal 8. Conserve and protect important elements of diversity—such as endangered and threatened species habitat, declining natural communities, and uncommon biological, ecological, or geological sites.

Goal 9. Manage for habitat conditions to recover and sustain viable populations of all native species, with special emphasis on rare species.

Goal 10. Apply prescribed burning technology as a primary tool for restoring fire's historic role in ecosystems.

Objective 9. Maintain a dynamic system of at least 45,000 to 55,000 acres of habitat capable of supporting scrub-jays Forest-wide on the Ocala NF. The 10-year population objective is 742 to 907 groups.

Objective 19. Regenerate between 39,000 and 41,000 acres of sand pine on the Ocala NF.

The forest plan also established Management Areas (MAs) for geographic areas with similar resources, desired conditions and management direction. Scrub stands occur in most of the Management Areas on the ONF, but the vast majority of scrub is located in four MAs: 0.2 Wilderness (11,778 acres, primarily in the Juniper Prairie Wilderness), MA 8.2 Sand pine, mixed regeneration, moderate openings (198,562 acres), MA 8.4 Scrub jay management (2,870 acres) and MA 9.1 Pinecastle bombing range (5,339 acres). Two MAs are most relevant for this project:

Management Area 8.2 – The goal of Management Area 8.2 is “to produce pulpwood under conditions that balance efficient timber production practices with practices that promote the growth and perpetuation of species native to the Big Scrub area within the Ocala NF” (USDA 1999a, p. 4.46). Currently, approximately 94% (around 191,000 acres) of the ONF's 226,000 total acreage of scrub habitat is designated as Management Area 8.2. Although some scrub species occur in dense, older sand pine stands that comprise most of the MA, most of the high-quality habitat in MA 8.2 results from sand pine timber harvest, which creates open conditions preferred by many rare scrub species. Habitat within MA 8.2 is often seeded with sand pine after harvest to ensure a marketable stand of pulpwood in the future, but sand pine in high densities can produce habitat conditions unfavorable to scrub-jays within 8-10yr of the initial harvest (Figure 3). Therefore, the method of managing habitat

within MA 8.2 may not be producing scrub habitat of a high enough quality or quantity to maintain a stable, viable Florida scrub-jay population in the long-term.



Figure 3. Recently harvested stand on the ONF with dense sand pine covering bare sand and oaks that are important for scrub-jay foraging and nesting (photo Jay Garcia).

Management Area 8.4 – The goal of Management Area 8.4 is “to provide conditions favorable to perpetuate Florida scrub-jay and other species that require young oak scrub” (USDA 1999a, p. 4.47). Currently, only 1.3% (2,870 acres) of the ONF’s scrub habitat is managed primarily for scrub-jays under Management Area 8.4. After harvesting existing sand pine, these areas are usually roller-chopped and then burned to maintain open scrub habitat (Figure 4). These stands are not reseeded with sand pine and the timing of the chopping and prescribed fire are often coordinated to reduce natural sand pine recruitment. Therefore, stands in MA 8.4 usually remain open longer than those in MA 8.2, although after 10-12yr their habitat value for Florida scrub-jays and other open scrub species wanes (Miller 2015). The forest plan allows for managing these stands with mechanical methods (e.g., roller-chopping, mowing) or prescribed fire

when the vegetation grows to a point that the stand is no longer suitable scrub-jay habitat.



Figure 4. Prescribed fire in recently harvested and roller-chopped scrub in MA 8.4 (photo by Carrie Sekerak).

The introduction to the plan states that the National Forests in Florida forest plan is based on an adaptive approach to resource management, which it defines as “using our scientific knowledge and experience to design management strategies that allow us to progress toward our ecological and socioeconomic objectives as we learn. The adaptive aspect of these strategies is the ability to test our assumptions and make adjustments as we learn from our work and the work of others in the field” (USDA 1999a, p. 1.1)

The forest plan has been amended several times to incorporate the best available scientific information on scrub management and scrub-jay biology. Most importantly, forest plan Amendment 7 expanded the area designated as MA 8.4 and Amendment 8 combined MA 8.1 into MA 8.2 and revised management

direction for MAs 8.2 and 8.4 (available at <http://www.fs.usda.gov/detail/florida/landmanagement/planning/?cid=stelprdb5269794>). Amendment 8 also increased the opening size limit for MA 8.2 and MA 8.4 to 800ac, which is calculated as the contiguous area that has been harvested or burned within the past 5 years. This opening size was changed because 800 acres is approximately the area required to support enough scrub-jay groups to have a high probability of long-term persistence if the habitat is maintained (Breining et al. 1999).

Current habitat conditions and recent trends

The Ocala National Forest consists of approximately 360,000 acres of federally managed land in north-central peninsular Florida, and almost two-thirds of the area (approximately 226,000 acres) is classified as scrub. Over 200,000 acres is classified as sand pine scrub due to the presence of an overstory of that species, whereas the remaining area is classified as oak scrub (Figure 5).

Much of the discussion below focuses on breeding habitat for Florida scrub-jays. This is largely warranted because this species is an iconic but declining species that is closely associated with imperiled scrub habitats that occur on the ONF. However, the scrub-jay is also representative of a suite of species that prefer fire-maintained, open scrub habitat over unnaturally dense stands of mature sand pine. Although specific resource requirements vary and no species is a perfect umbrella or surrogate for others, optimal scrub jay habitat within the Ocala National Forest is also high-quality habitat for many other rare, state- or federally-listed species, including eastern indigo snake, sand skink, Florida bonamia, scrub pigeonwing, scrub lizard, short-tailed snake, eastern diamondback rattlesnake, gopher tortoise and southeastern kestrel.

Because of its ecological importance, creating large areas of early successional habitat suitable for Florida scrub-jays has been one of the primary considerations in defining desired conditions for scrub. This emphasis is clear from the management goals in the forest plan as well as changes in scrub management allowed by subsequent plan amendments.

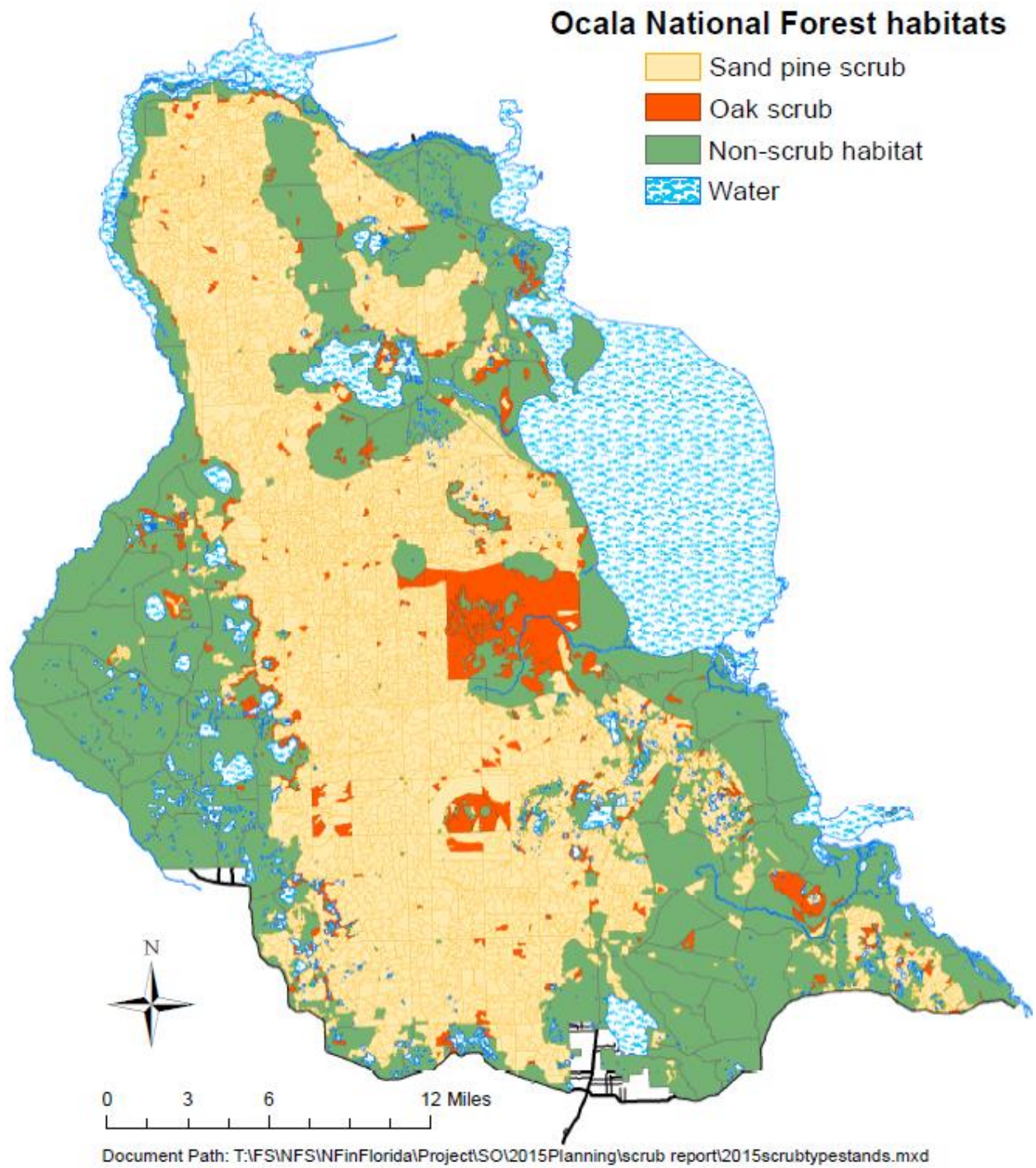


Figure 5. Distribution of scrub habitat across the ONF.

Despite efforts to generate open scrub habitat, a 2008 landscape scale assessment found that habitat conditions in scrub were not meeting forest plan goals and objectives for that system. As described above, forest plan amendment 8 authorized several changes in management; implementation of scrub projects since then has focused on creating larger areas of scrub habitat by harvesting contiguous stands and harvesting stands adjacent to current habitat. Figure 6 shows trends in suitable scrub jay habitat (scrub stands 3-12 years old) from 2008 to 2018, which is the furthest in the future that can be accurately projected based on sand pine harvest that had been completed at the time of this analysis.

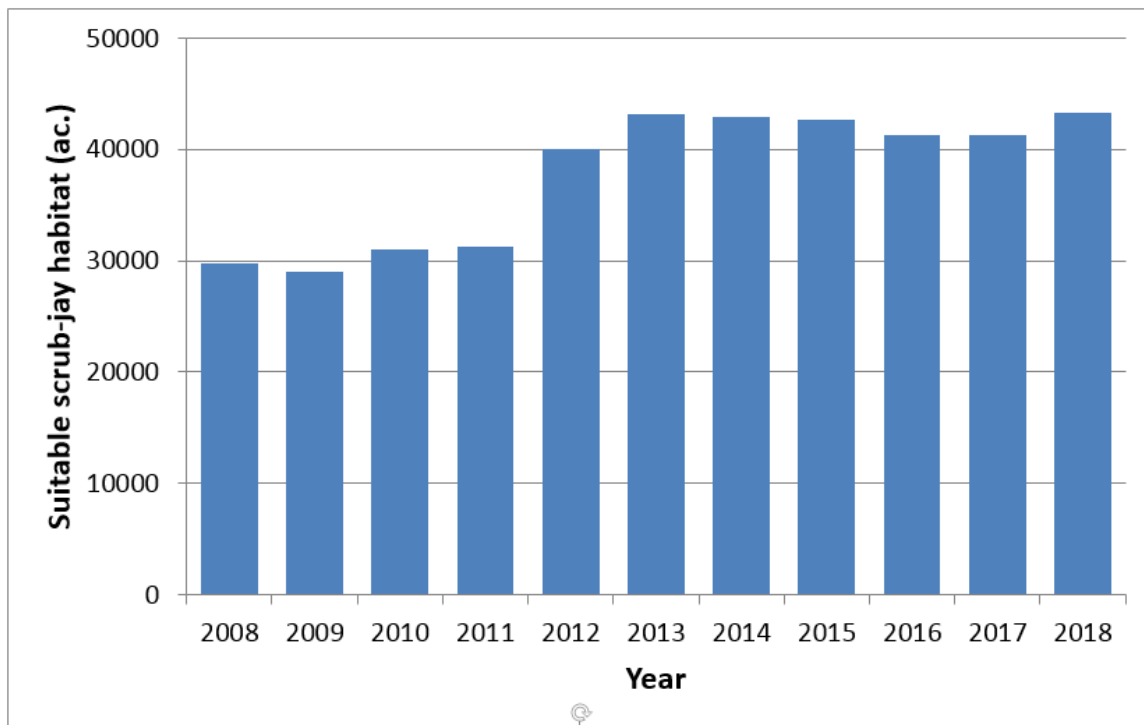


Figure 6. Area of suitable scrub-jay breeding habitat for the 10-yr period 2008-2018.

Although the total amount of suitable scrub jay habitat is perhaps the most important measure of management success, the size and connectivity of patches is also relevant for this species. Table 1 shows trends in several measures of scrub jay habitat calculated from dissolved polygons of suitable habitat (i.e., contiguous stands of suitable habitat were considered as a single polygon even if they were different ages within the 3-12yr range).

Table 1. Scrub-jay habitat metrics.

Year	Habitat measures			
	Total suitable habitat (ac.)	No. of patches	Mean patch size (ac.)	Patches >800ac.
2008	29,778	411	72.5	2
2009	29,009	391	74.2	2
2010	31,039	398	78	1
2011	31,239	399	78.3	2
2012	40,018	390	102.6	3
2013	43,108	381	113.1	5
2014	42,928	387	110.9	4
2015	42,662	385	110.8	4
2016	41,267	331	124.7	6
2017	41,298	305	135.4	6

The current spatial distributions of MA 8.4 and open scrub habitat throughout the ONF are shown in Figures 7 and 8 below. Designation of additional MA 8.4 in amendment 8 has largely achieved the desired purpose of maintaining early successional scrub habitat. In the past two years several areas in MA 8.4 have been harvested, chopped, and then burned a year or two later to remove woody debris and kill seedling sand pines. Consequently, approximately 29% of the land in MA 8.4 is currently suitable breeding habitat for scrub-jays (3-12 years post-harvest or fire) with an additional 17% in the 0-2 year old range. Currently, the Juniper Prairie Wilderness and Pinecastle bombing range, both of which experience frequent fire, have a higher proportion of 3-12 year old scrub (71% and 78% of the MA, respectively). However, only 14% of MA 8.2, which contains by far the largest area of scrub, is currently suitable scrub jay breeding habitat with 4% in the 0-2 years old range.

In summary, the total amount of suitable scrub-jay habitat is larger now than in 2008, but most of the increase is due to the addition of several thousand acres of habitat in 2012 as the scrub from the 2006 and 2009 Juniper Prairie Wilderness wildfires grew into the 3-12 years old age range. Other habitat metrics indicate that shifting management has been successful in improving scrub jay habitat, as shown by increases in both the average size of habitat patches and the number of patches over 800 ac. Despite this progress, the total area of open scrub remains below the forest plan objective of 45,000-55,000 acres, and open scrub

in MA 8.2 frequently becomes unsuitable in 10 years or less following sand pine harvest.

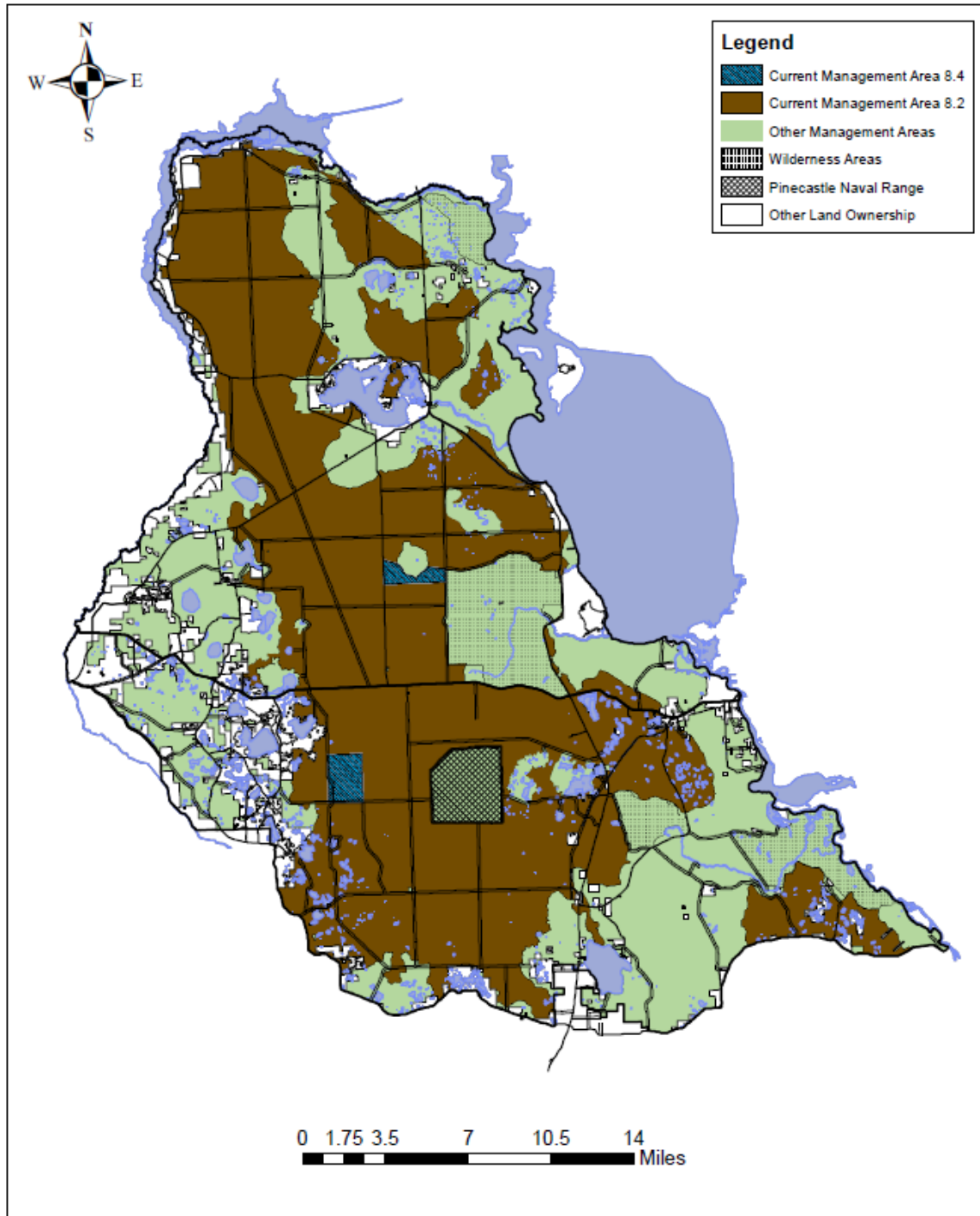


Figure 7. Current areas designated as MA 8.4.

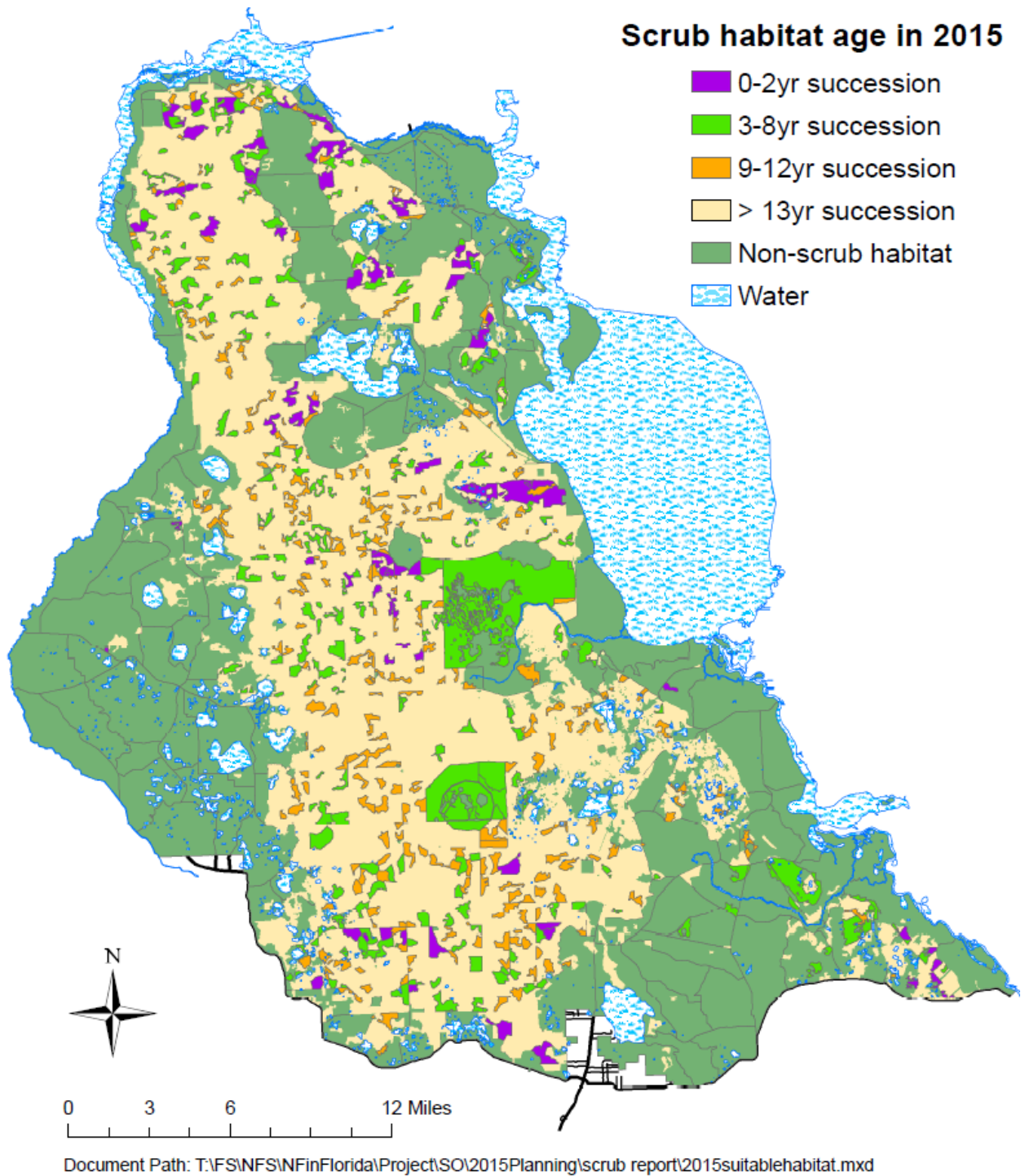


Figure 8. Spatial distribution scrub habitat, categorized by successional status.

Need for action and purpose of this project

A recent review of Florida scrub-jay population trends found an overall population decline of approximately 25% on managed lands from 1992-1993 to 2009-2010 (Boughton and Bowman 2011). Recent monitoring efforts on the Ocala National Forest (Miller 2015), combined with estimates of available habitat, suggest that the ONF scrub-jay population consists of approximately 1,100-1,250 groups (~2,530-2,875 individuals). If this estimate is correct, then the ONF currently supports nearly half of all known Florida scrub-jays on lands managed for conservation. As such, the importance of Ocala National Forest for persistence of the species “cannot be overstated” (Boughton and Bowman 2011, p. 4).

As scrub habitat across the state continues to be cleared for commercial, agricultural or residential development or degraded by lack of fire or non-native invasive species, the populations of many scrub-specialist species are declining. The Ocala National Forest is the by far the largest remaining potential habitat for the Florida scrub-jay and provides habitat for the largest population of this species. Therefore, appropriate management of scrub habitat on the ONF is essential for long-term persistence of Florida scrub jays as well as many other scrub species.

The importance of the ONF as was recognized in the forest plan, including goals and objectives, management standards and guidelines and Management Area designation and desired conditions. The forest plan and accompanying EIS (USDA 1999b) suggested that sand pine harvest of 3,900-4,100 acres per year would be the primary management tool to generate open scrub. However, sand pine harvest has rarely met the forest plan objective and, therefore, the forest has also failed to achieve the desired 45,000-55,000 acres of suitable Florida scrub-jay habitat (forest plan objectives 9 and 19, USDA 1999a, p. 2.5-2.6). Furthermore, recent research and Florida scrub-jay monitoring efforts (Miller 2015) have shown that habitat quality declines in stands with a high density of sand pine seedlings following harvest, in many cases becoming unsuitable before the general guideline of 12 years post-harvest. Although sand pine harvest has contributed to sustaining scrub-jays on the forest and will continue to do so in the future, it is also clear that the silvicultural methods most appropriate for perpetuating marketable sand pine stands are not ideal for creating and maintaining open scrub for scrub-jays and other species with similar habitat preferences.

Therefore, we have determined that achieving forest plan objectives for open scrub habitat and conservation of rare scrub species requires managing more of the forest specifically for open oak scrub. Management Area 8.4 was established

in the forest plan to meet these goals, but is currently only designated for ~3,000 acres. The purpose of this amendment is to increase the area in MA 8.4 to ~52,000 acres to provide sufficient habitat for persistence and potential recovery of open scrub-specialist species, including the Florida scrub-jay. Over the next 20-25 years, implementation of MA 8.4 management direction on this area will contribute towards the Forest Plan goal of “managing for habitat conditions to recover and sustain viable populations of all native species, with a special emphasis on rare species” (USDA 1999a, p. 2.4).

Decision framework

Designation of Management Areas, revision of desired conditions and management standards for MA 8.4 and consideration of a newly discovered federally listed species all require an amendment to the forest plan. The responsible official for this project is Kelly Russell, Forest Supervisor for the National Forests in Florida. Based on the purpose and need described above, the effects analysis disclosed below and consideration of public comments, Supervisor Russell will determine the following:

- Does the proposed action or another alternative meet the purpose and need describe in the proposal?
- If so, are any additional management requirements, mitigation measures or monitoring necessary to reduce damage to forest resources?
- Are there significant environmental effects related to the proposed action that require further analysis in an environmental impact statement?

The decision for this proposed forest plan amendment is not directly connected with the ongoing effort by USFWS to revise the Florida scrub-jay recovery plan. However, the National Forests in Florida are committed to supporting that effort and the relationship between scrub management on the Ocala National Forest and recovery of Florida scrub-jays is a major consideration for this decision.

If the proposed action is implemented, the new MA 8.4 areas would be managed as described in the 1999 Land and Resource Management Plan and applicable forest plan amendments (including the changes to the desired condition and standards for MA 8.4 in this amendment). A decision on this proposed forest plan amendment would not authorize or approve implementation of any on-the-ground forest management activity. All future management activities would be subject to the appropriate level of environmental analysis and public involvement, including site-specific project-level analysis and public comment periods.

Public involvement

A proposed action for this project was posted to the National Forests in Florida website in November 2, 2015 (<http://goo.gl/1Ze7Xg>). Pursuant to CEQ and Forest Service NEPA regulations for project scoping (40 CFR 1501.7, 36 CFR 220.4(e), 36 CFR 219.16), a notification letter and request for comments was mailed or emailed to interested parties on November 9, 2015. Potentially interested or affected individuals and organizations were identified as those who have recently requested to be informed about projects on the Ocala National Forest or who are involved in Florida scrub-jay research or recovery efforts. County commissioners and tribes were also notified during the scoping period. In compliance with regulations for public notification of forest plan amendments (36 CFR 219(c)(4)), this opportunity to comment and instructions for submitting comments was advertised in a legal notice published November 9, 2015 in the Ocala Star Banner. Scoping comments were accepted until January 6, 2016.

Eight comments were received during the project scoping period and are summarized in Appendix 1. All were generally supportive, though several made suggestions for changes that could be made to the proposed action or its implementation. One additional comment was received on May 18, 2016 regarding the potential effects of the project on Florida black bears and will be considered during the analysis process but was not filed during a formal opportunity for comments. None of these comments raised unresolved conflicts associated with the proposed action or described causal relationships between the proposed action and significant environmental effects. We determined that these comments did not require development of a completely new alternative, although some suggestions were incorporated into the modified proposed action described below.

Pursuant to 36 CFR 219.16, this Draft Environmental Assessment and Draft Finding of No Significant Impact will be available for public comment for 30 days following publication of a legal notice in the Ocala Star Banner newspaper. Only individuals or organizations who file substantive comments during a specified comment period (i.e., the scoping period already completed or the 30-day notice and comment period on the draft EA) will have standing to object to the project decision (36 CFR 219.53). All comments will be considered part of the project record and will be available to the public, including the names and contact information of commenters.

2. PROPOSED ACTION AND ALTERNATIVES

Forest Service NEPA regulations state that “The EA shall briefly describe the proposed action and alternative(s) that meet the need for action. No specific number of alternatives is required or prescribed” (36 CFR 220.7(b)(2)). For this project, the USFS developed only the proposed action described below, with a no action alternative of continuing current management.

Changes to proposal

Consideration of public comments, consultation with the US Fish and Wildlife Service, communication with the Florida Fish and Wildlife Conservation Commission and internal discussion resulted in several, mostly minor, changes to the proposal since the public scoping period in fall 2015:

- Changes to boundaries of areas proposed for redesignation as Management Area 8.4. Many changes were made to the proposed areas due to mapping discrepancies, current conditions and feasibility of management with prescribed fire.
- Addition of compartment 38 to the areas proposed for designation as MA 8.4. This change was specifically suggested by Dr. Karl Miller (FWC). In addition to improving the spatial distribution of MA 8.4 across the forest, this compartment borders frequently burned longleaf pine sandhill so should be appropriate for management with prescribed fire.
- Removal of several areas in the originally proposed Lake Mary MA 8.4 area due to concerns regarding wildfire near private property as well as high proportion of non-scrub habitat.
- Minor changes to proposed wording of forest plan standard 8.4-4.
- Addition of language to the forest plan regarding scrub pigeonwing (*Clitoria fragrans*), a federally threatened plant species that was recently discovered on the ONF.
- Replacement of the current language for standard WL-10 (USDA 1999a, p. 3.28) for protection of eastern indigo snakes (*Drymarchon corais couperi*) with the USFWS’s most recent guidance for indigo snake protection.

Descriptions of the changes made to boundaries of areas proposed for designation as MA 8.4 are described in Appendix 2 along with maps of the

original and current proposed action. The description of the proposed action below describes the current proposal and incorporates all of these modifications.

Proposed action

The proposed forest plan amendment has four components, all of which are related to scrub management on the Ocala National Forest:

- 1) Redesignate 51,850 acres from Management Area 8.2 (Sand Pine, Mixed Regeneration, Moderate Openings) to Management Area 8.4 (Scrub-Jay Management Area). Of this total area, 44,706 acres are currently scrub vegetation and the rest is interspersed prairies, lakes and pine flatwoods.
- 2) Revise the desired future condition of Management Area 8.4 and the related forest plan guideline 8.4-4.
- 3) Add a newly discovered species, scrub pigeon wing, to the federally listed plants that occur on the Ocala National Forest and describe appropriate management considerations. This is an administrative change to the forest plan reflecting new information and does not require analysis. The effects of forest plan implementation on scrub pigeonwing was recently analyzed and consulted upon with the USFWS.
- 4) Change forest plan direction (standard WL-10) regarding protection of eastern indigo snakes. This change would apply forestwide, but eastern indigo snakes have not been found on the Apalachicola and Osceola National Forests in at least 20 years. This addition to the proposed action was suggested by USFWS during the consultation process. This is an administrative change to the forest plan reflecting changes in USFWS policy and does not require analysis.

These proposed changes are described below, with particular emphasis on how actions under the amendment would differ from actions under the current Forest Plan direction (i.e., no action).

Designation of new Management Area 8.4

The National Forests in Florida proposes to designate ~51,850 acres on the Ocala National Forest as Management Area 8.4 (Scrub-Jay Management Area). All of this area is currently designated as Management Area 8.2 (Sand Pine, Mixed Regeneration, Moderate Openings). Eleven new Scrub-Jay Management

Areas would be established and two existing Scrub-Jay Management Areas would be expanded, as shown in Figure 9.

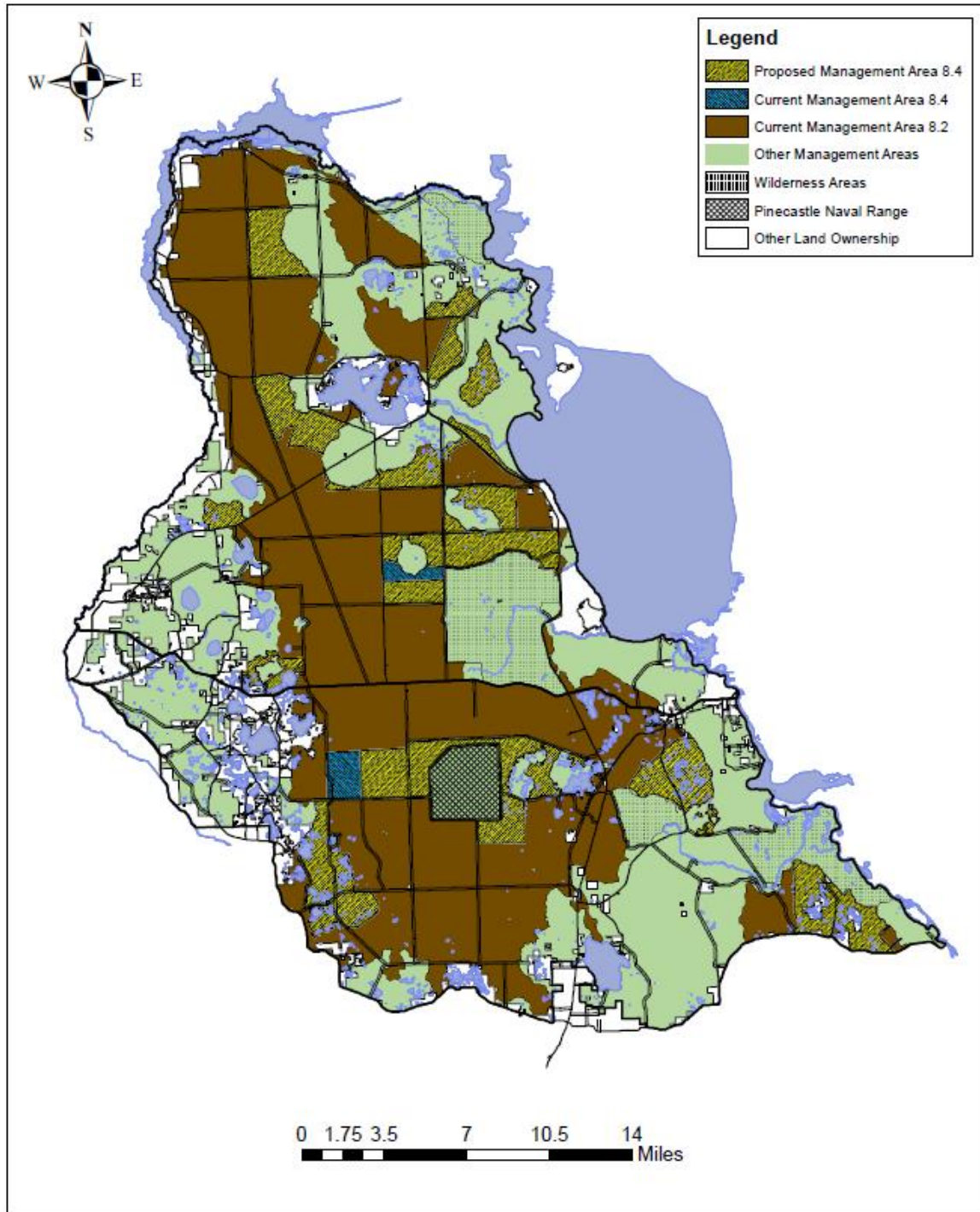


Figure 9. Areas proposed for designation as MA 8.4.

Fifty-one compartments on both districts and in all three counties within the ONF boundaries would be affected by the proposed change. See Appendix 2 for changes in boundaries of the proposed areas since the original proposal and detailed maps of the thirteen currently proposed Management Areas.

The proposed change in MA designation would shift the primary management objective in these areas from producing sand pine to generating and maintaining conditions suitable for Florida scrub-jays and a suite of other animal and plant species with similar habitat requirements.

Implementation of land management activities on the proposed new Management Area 8.4 would be contingent on adequate funding for increasing sand pine harvest as well as prescribed burning and mechanical treatments associated with continued maintenance after the final timber harvests have been completed. Therefore, the areas would be converted to open scrub over the next 20-25 years. Management within Management Area 8.2 would continue as described in the LRMP, focusing on production of merchantable sand pine. However, areas within MA 8.2 would continue to provide habitat for Florida scrub-jays, and planning of timber harvests and other relevant projects would still take scrub-jay habitat dynamics into consideration as well as the ecological needs of other scrub plant and animal species.

The following land management activities currently occur within Management Area 8.4, and would be expected to be conducted in the proposed MA 8.4 areas:

Removal of sand pine would occur to remove the overstory and set back succession. Sand pines of any age may be removed through commercial harvest or non-commercial methods such as roller-chopping or prescribed fire. Typical commercial timber harvest may be suitable for stands approximately 25 years old or older, whereas other methods to remove sand pine may be suitable in younger or less dense stands. Mature sand pine stands in MA 8.4 would be harvested a final time with a clearcut using a feller-buncher, skidder, and loader and then would not be reseeded. Harvested stands may be roller-chopped and/or burned after harvest. Five hundred to 2,000 acres of sand pine would be removed per year collectively from MA 8.4 for the next 20-25 years. Final harvests of sand pine would progress on portions of different Management Areas over time and would be spread out over multiple future projects. Although sand pine harvest may be accelerated if the proposed amendment is approved, it is likely that the total area in which sand pine is harvested will be within the range of 3,900-4,100 acres described in the Forest Plan and consulted upon in the Forest Plan BA.

Roller-chopping would prepare scrub habitat for prescribed burning operations by decreasing vegetation height and breaking apart vegetation to distribute and cure fuels. This activity uses large drums with blades that are spaced 12-18 inches apart. The blades sink up to 8-10 inches into the soil and typically disturb 90% of vegetation less than 6 inches in diameter. A roller-chopping layout that leaves intermittent areas of undisturbed vegetation (i.e., a “sloppy chop”) is encouraged to promote small-scale habitat variability. Roller-chopping would occur as a method of preparation prior to prescribed burning under two different conditions: 1) Post-harvest chopping would occur within a short period (typically 3-6 months) after a final sand pine harvest. A roller-chopper would run over the recently logged site to reduce the size of logging slash and coarse woody debris. This increases the exposed surface area of post-logging slash, allowing for quicker curing and greater consumption during the subsequent prescribed burn. 2) Pre-burn chopping may occur in scrub waning in habitat quality for scrub-jays. A roller-chopper would mash down the scrub vegetation in order to transform standing live fuels to downed dead fuels. This is often necessary to reduce flame heights and provide a ground fuel component to promote movement of fire through the burn unit. In this type of application, the roller-chopper blades would not sink their maximum depth into the ground due to the presence of the shrub layer. However, the chopper blades would sink deeper into the ground in any areas of open bare ground within the treated stand.

Prescribed burning would set back succession in scrub habitat or reduce post-harvest logging slash and coarse woody debris. Post-harvest burning would occur 3 to 6 months after sand pines are harvested a final time from MA 8.4 forest stands. This type of burning consumes the slash and coarse woody debris left over from logging and roller-chopping and regulates oak resprouting. Maintenance burning, or burning to set back succession, would occur once a scrub stand has become unsuitable or nearly unsuitable for Florida scrub-jays. Stands generally become unsuitable when the oak shrub layer becomes too tall (over 9 feet in height) and crowded. Scrub stands that have become too tall may be roller-chopped (see above) prior to burning because standing vegetation can create extremely tall flame heights which cause containment problems. Should the application of new techniques or particular spatial arrangements allow for safe burning and achievement of resource objectives without prior chopping, this option would be explored.

The majority of prescribed burning operations in the near future are anticipated to occur in the fall or winter. Although prescribed burns coinciding with the natural fire season (late spring or early summer) are more desirable to mimic natural processes, fires occurring within these natural parameters in the scrub are often fast-moving, intense, and difficult to contain. That said, natural fire regimes are preferred and attempts would be made to mimic the natural fire season when safety, weather, and personnel allow.

Revision of Desired Future Condition for Management Area 8.4

A revised Desired Future Condition (DFC) was proposed for describing habitat conditions that would indicate treatment to reset succession was needed. The height of the shrub layer in the revised DFC is used as a trigger point for burning as opposed to specifying a desired age range. Topography, weather, the presence of mechanical treatments, and prior site conditions can all influence how quickly a stand grows over time. Using shrub layer height better represents conditions linked to habitat quality for Florida scrub-jays and other species.

Current DFC for MA 8.4 (USDA 1999a, p. 4.47):

“In this area, the vegetation patterns consist of a mosaic of oak scrub patches. Patch sizes are generally governed by the presence of effective burning boundaries, but may be as large as 800 acres. Each patch is burned as needed to ensure that 70% of the patch has oaks 3-6 feet tall and to expose bare sand on the ground. The area looks different from the sand pine scrub in other management areas, because this area has only a very low density of sand pine overstory. Sand pine is deliberately removed by clearcutting, followed by frequent prescribed burns that kill sand pine seedlings as they try to establish. These conditions remain suitable for Florida Scrub-Jays for the next 15 to 20 years, but they gradually deteriorate as the shrubs fill in and the bare sand becomes covered with litter. At this point, the patch is burned to reset the conditions for the Scrub-Jay and other species. Evidence of plowed fire lines around previous fires is frequently encountered. The landscape is rarely interrupted by narrow road corridors.”

Proposed revision for MA 8.4:

In this area, vegetation patterns consist of a mosaic of oak scrub patches. The patches are dominated by scrub habitat with high amounts of scrub

oak cover, low sand pine cover, and scattered areas of open bare ground. The oak layer is less than 9 feet tall over most of the area and scattered areas of older habitat occur rarely across the landscape. Young, short scrub habitat is adjacent to older, taller scrub habitat that is decreasing in habitat quality for scrub-jays. Commercial timber harvests may occur within this area as merchantable sand pines are harvested for a final time. Mechanical treatment may occur after harvest as pre-burn fuel preparation technique or as a stand-alone treatment where application of fire is not advisable. Prescribed burning operations can be initiated whenever the habitat conditions begin to degrade. After an initial rotation, burns may become patchier as areas of open, bare ground prevent complete fuel consumption over the entire burn block. Patch sizes are generally governed by the presence of effective burning boundaries.

Modification of Standard & Guideline 8.4-4

Standard & Guideline 8.4-4 is proposed to be modified by removing the requirement to delay prescribed burning operations if active nesting is present. Burning scrub before the habitat has completely degraded maximizes habitat productivity for Scrub-Jays. Burning during nesting season may be necessary to treat and maintain the needed acreage of early successional scrub habitat on the landscape and to mimic natural processes for other species that occur during the most fire-prone months. See the direct effects analysis for the Florida Scrub-Jay below for a detailed discussion.

Current Standard & Guideline (USDA 1999a, p. 4.47):

8.4-4 – After clearcutting, prescribe burn the area to start natural regeneration of scrub oak. Prescribe burn when the vegetation has grown so old that its quality as scrub-jay habitat is degraded. Delay burning if active nesting is present.

Proposed Standard & Guideline:

8.4-4 – After clearcutting, prescribe burn the area to start natural regeneration of scrub oak. Prescribe burn when the vegetation has grown so old that its quality as scrub-jay habitat is degraded.

Add scrub pigeon wing to the Forest Plan

Two populations of scrub pigeon wing (*Clitoria fragrans*), a federally threatened species, have recently been discovered on the Ocala National Forest. One population is in sandhill habitat and the other is in scrub habitat within the original MA 8.4 area. The discovery of this species constituted new information on listed species not previously considered, so consultation under Section 7 of the Endangered Species Act was reinitiated in fall 2015. The USFWS determined that implementation of the Forest Plan would not likely jeopardize the continued existence of this species (USFWS Log No. 04EF 1000-2016-F-0110).

Proposed addition to Forest plan page 3-18:

Scrub pigeon wing. This threatened species is a long-lived perennial herb that is known only from high pine and scrub habitats on central Florida ridges. Forest Plan direction is consistent with the management considerations described for this species in the Multi-species Recovery Plan for South Florida (USFWS 1999).

The habitat preferences and responses to management activities of scrub pigeon wing are similar to those of three other listed species on the Ocala National Forest, Florida bonamia, scrub buckwheat and small Lewton's milkwort. Therefore, no additional management standards or guidelines are required.

Update of Standard & Guideline WL-10

The US Fish & Wildlife Service finalized standard protection measures for the eastern indigo snake in 2013. These measures differ from the current direction in the forest plan and the USFWS requested that we update our policies for protecting this species.

Current Standard & Guideline (USDA 1999a, p. 3.28):

WL-10 – Protect from harm or move out of harm's way indigo snakes and gopher tortoises encountered by personnel, cooperators, or contractors engaged in activities that may endanger individual specimens. Wildlife biologists should be contacted to safely move these species and collect needed data.

Proposed Standard & Guideline:

WL-10 – Follow the most recent US Fish & Wildlife Service policy for eastern indigo snake protection. This includes the following actions for land management activities:

All personnel, contractors or cooperators involved in prescribed fire, timber harvest or other vegetation management activities will be educated on eastern indigo snake identification and receive the USFWS brochure on the species.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, and the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, and the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

The elements of the current WL-10 language regarding gopher tortoises were revised in forest plan amendment 8. Amendment 8 referred to protection guidelines in the Florida Fish and Wildlife Conservation Commission's Gopher Tortoise Management Plan and modified WL-11 regarding protection of tortoise burrows when conducting certain land management activities.

No action alternative

The no action alternative would not redesignate Management Areas or revise the management direction for MA 8.4. The current management areas, as shown above in Figure 7, would be maintained. Timber harvest and other management activities authorized for MAs 8.2 and 8.4 in the forest plan and subsequent amendments would continue.

The proposed language for including scrub pigeonwing in the forest plan and updating direction for eastern indigo snake are non-discretionary and are considered administrative changes, so they would still be authorized as amendments to the forest plan under a no action alternative.

3. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

Forest Service regulations for implementing NEPA state that an environmental assessment “shall briefly provide sufficient evidence and analysis, including the environmental impacts of the proposed action and alternative(s), to determine whether to prepare either an EIS [environmental impact statement] or a FONSI [finding of no significant impact]” (36 CFR 220.7(b)(3)(i)). Significant impacts are determined by considering the context and intensity of the direct, indirect and cumulative effects of the proposed actions (40 CFR 1508.25, 1508.27). Direct effects are those that “are caused by the action and occur at the same time and place,” indirect effects are those which “are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable” and cumulative effects are “incremental impact[s] of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7, 1508.8).

This forest plan amendment does not propose any site-specific management activities and, if approved, implementation of the management strategy described here would require future analysis, public involvement and consultation with the USFWS.

Analysis framework

The effects of the proposed MA designation are best understood as the extent to which future land management activities under the proposed changes would differ from the effects of scrub management already authorized by the forest plan. Analysis of the effects sand pine timber harvest, prescribed fire and mechanical vegetation management in scrub on a range of resources have been documented in the forest plan FEIS (USDA 1999b) and multiple forest plan amendments and will not be comprehensively reviewed here. Instead, the analysis below is focused on issues raised in discussions with the Florida Fish & Wildlife Conservation Commission, consultation with the US Fish & Wildlife Service, public comments and internal discussions with resource specialists.

Under current MA 8.2 direction, sand pine stands would be harvested, restocked and allowed to mature until the next commercial harvest. By contrast, under the proposed changes, stands designated as MA 8.4 would not be restocked after

harvest and would be reset to open scrub conditions as necessary. Therefore, the effects of the proposed MA designation beyond those already considered would result from increased chopping, burning or non-commercial vegetation harvest in areas that are waning but possibly still marginally suitable habitat for Florida scrub-jays.

The scope of environmental analysis includes considering connected actions, defined as those that “are closely related [to the proposed action] and therefore should be discussed in the same impact statement” (40 CFR 1508.25). For this project, the action (amending the forest plan) would not have any direct environmental effects, but the expected activities resulting from redesignating management areas may affect a range of resources. Therefore, the analysis below is preceded by a description of the reasonably foreseeable actions that would likely be authorized through future projects if the proposed amendment is approved.

Expected management activities

The proposed MA designation will only achieve the desired outcomes if management activities are implemented to increase and then maintain the area of open scrub habitat. As described above, management of the new MA 8.4 areas would primarily consist of harvesting mature sand pine and resetting vegetation succession in areas that are waning habitat for Florida scrub-jays and other species that prefer open scrub. The activities described below are used here solely for the purpose of informing a robust, objective and quantitative analysis for how management changes would affect the Florida scrub-jay and other forest resources.

The suitability of scrub stands for Florida scrub-jay breeding and foraging habitat is a function of the height, density and patchiness of vegetation, particularly oaks. However, because detailed vegetation structure data are not available for all the stands proposed for designation as MA 8.4, this analysis uses stand age as a proxy for habitat structure. Experience on the Ocala National Forest and recent monitoring efforts suggest that current habitat structure is highly predictable based on time since last sand pine timber harvest, which is the primary mechanism for resetting vegetation succession in most of these stands. As stands are chopped and burned multiple times they may become patchier and retain suitable structure for scrub-jay breeding longer than 12 years, but past vegetation management has produced a predictable relationship between time since harvest and vegetation structure.

The current condition of the 51,850 acres proposed for designation as MA 8.4 is primarily oak or pine scrub (44,706 acres) with scattered prairies, wetlands, hardwood areas and pine flatwoods. The age structure of scrub stands is fairly typical of the Ocala National Forest, with ~3% (1,200 acres) 0-2 years since harvest, ~14% (6,377 acres) suitable scrub jay habitat 3-12 years after harvest and ~83% older than 12 years. By contrast, managing to maximize suitable habitat would generate an age structure of ~23% 0-2 years since harvest and 77% 3-12 years since harvest with no stands allowed to degrade to unsuitable habitat conditions through vegetation succession. The shift in management from the current conditions to the desired vegetation structure would be implemented over 20-25 years, and consists of two phases:

First ~20 years – Accelerated creation of open scrub

- Burn and/or roller chop 10%/year of the 3-12 year age class that is suitable but waning Florida scrub-jay habitat
 - o The acreage burned or chopped will increase gradually from 750 to 3,000 acres over 20 years
 - o The goal is to reset vegetation succession before the stand becomes completely unsuitable
- Harvest 2,000 acres/year mature sand pine (currently unsuitable habitat) within MA 8.4
 - o Currently, 37,129 acres of the 44,706 acres of scrub proposed for MA 8.4 is >12 years succession
 - o No stands in the 3-12 years post-harvest successional stage should transition into >12 years post-harvest or post-fire unless the vegetation structure still meets the desired conditions for high-quality scrub-jay habitat
 - o Therefore, in 18-20 years there should be little or no scrub habitat >12 years post-harvest or post-fire in MA 8.4

Beyond ~20 years – Transition and maintenance

- After 18-20 years, the 0-2 years post-harvest age range will be slightly over-represented, comprising ~30% of the area, due to accelerated harvest of mature sand pine.
- However, by chopping/burning ~3,439 acres of waning habitat each year, the forest will transition to and then maintain an even age distribution from 0-12 years succession in which ~3/4 of the area (~34,400 acres) will be in the suitable age range (3-12 years) at any given time.

Figure 10 below shows the acreage of the two primary management activities (harvesting mature sand pine and chopping or burning waning habitat) over time.

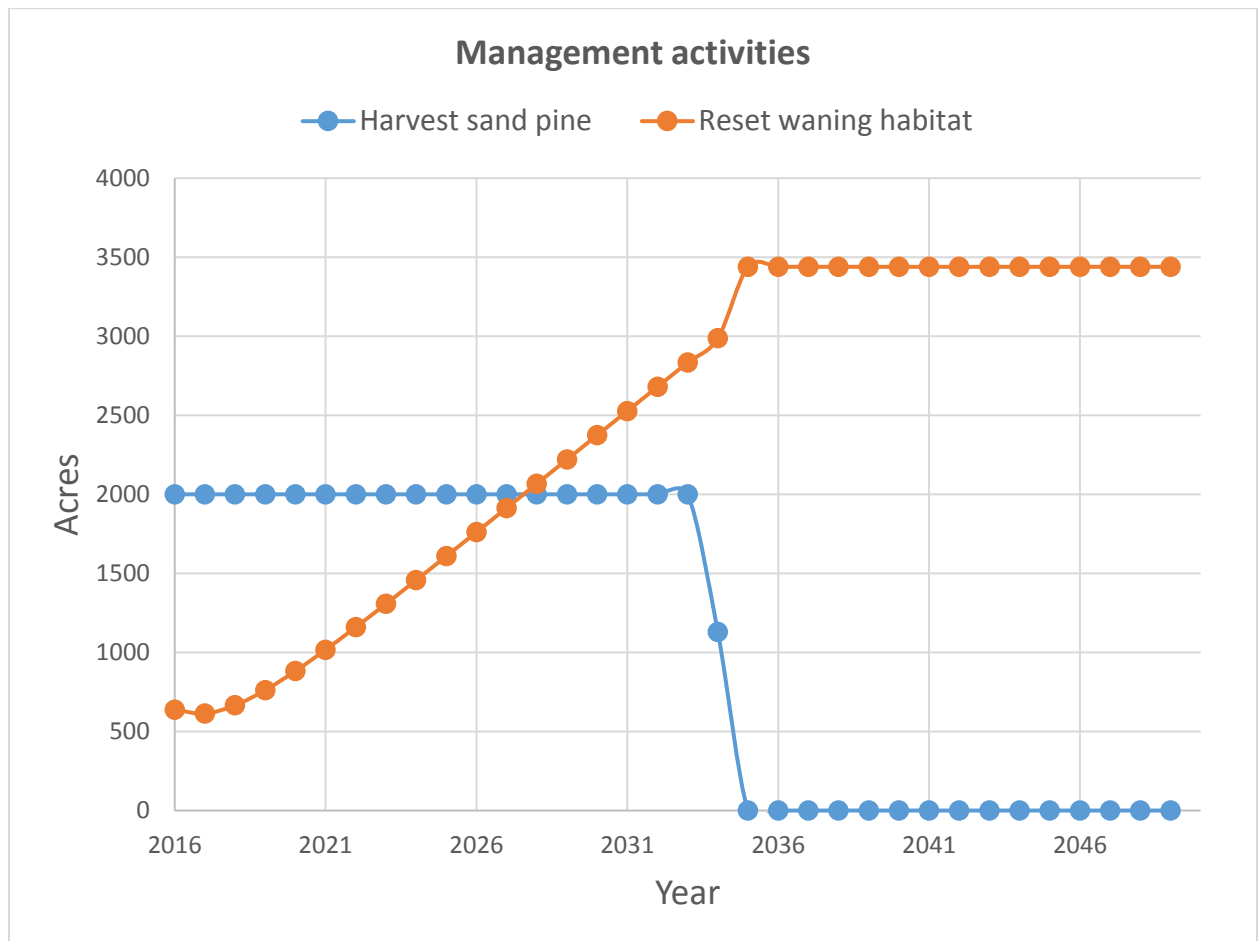


Figure 10. Management activities in scrub habitat proposed for designation as MA 8.4

The effects of this management strategy on scrub age structure are shown in Figure 11 below.

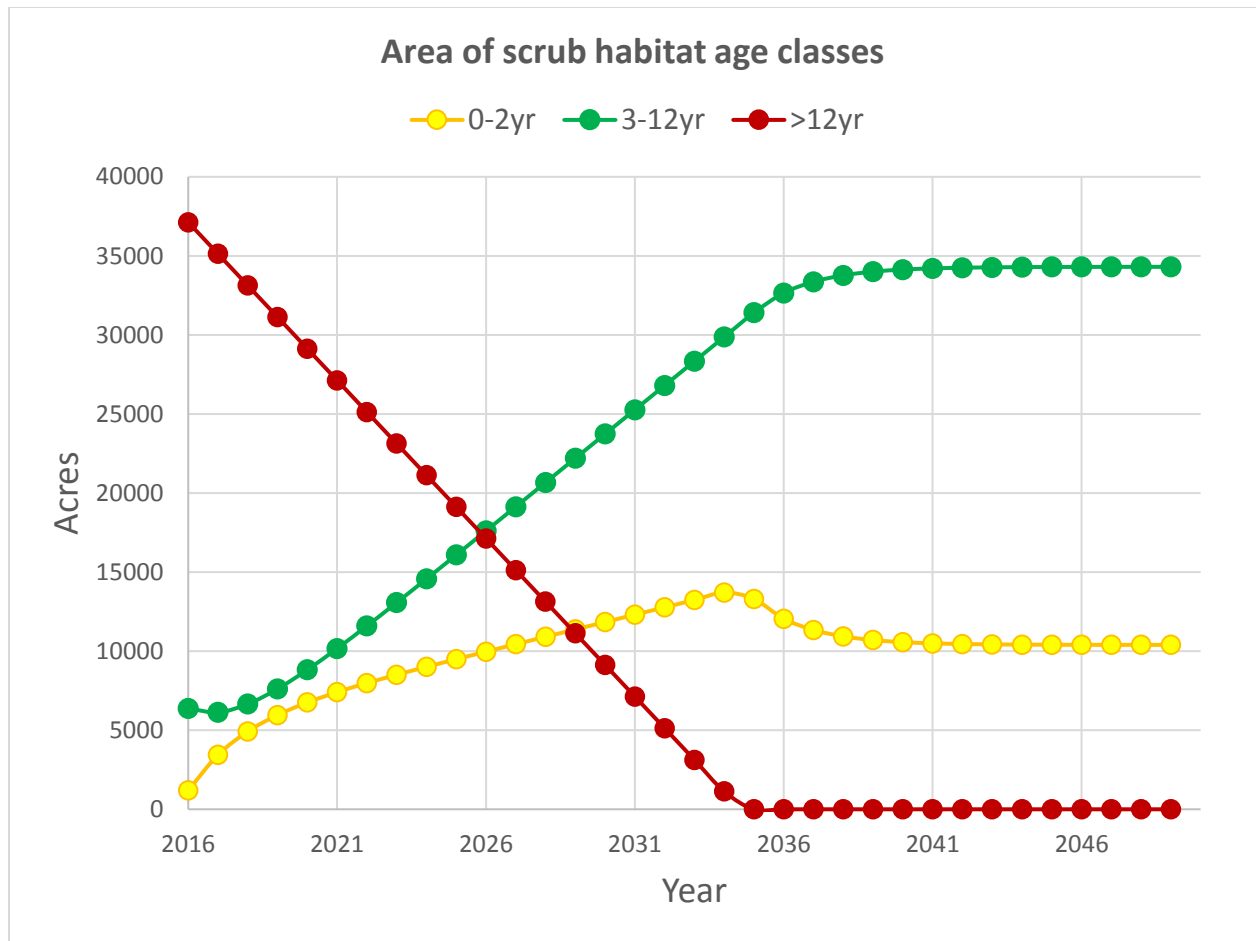


Figure 11. Acreage of three scrub age classes over time in scrub habitat proposed for designation as MA 8.4.

Other activities considered in cumulative effects analysis

NEPA regulations require considering the cumulative impacts of proposed actions, defined as “the impact of the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” (40 CFR 1508.7). For this proposed change in Management Areas, the relevant past, present and reasonably foreseeable actions are those other activities that affect scrub habitat conditions within the boundaries of the Ocala National Forest:

- Past activities that have resulted in the current sand pine scrub age distribution (shown in Figures 6 and 8 above)
- Sand pine timber harvest authorized by the Central Scrub project, totaling ~6,400 acres (<http://www.fs.usda.gov/project/?project=41484>). Approximately 5,250 acres of this is expected to be in MA 8.2 and

- approximately 1,100 acres of this would be in MA 8.4 if this amendment is approved. Harvest will be conducted over several years.
- Sand pine timber harvest proposed in the North 40 Scrub project, totaling ~9,400 acres (<http://www.fs.usda.gov/project/?project=48815>). Approximately 7,200 acres of this is expected to be in MA 8.2 and approximately 2,200 acres would be in MA 8.4 if this amendment is approved. Harvest would be conducted over several years.
 - Ongoing management in the existing MA 8.4 areas.
 - Ongoing prescribed fire in the Pinecastle Bombing Range and Juniper Prairie Wilderness.
 - Continued sand pine timber harvest in MA 8.2 beyond the already authorized or proposed projects above.

The total annual sand pine harvest per year is expected to average ~4,000 acres, as analyzed in the forest plan FEIS. Approximately 2,000 acres/year of this would be conducted in the proposed MA 8.4 areas as they are transitioned to open scrub. After this 20-25 year transition, the commercial harvest would occur primarily in the remaining 140,000 acres of MA 8.2, which would be restocked with sand pine through natural regeneration or seeding after harvest. The reduced area designated for sand pine production would shorten the average harvest rotation from 48 to approximately 35 years. During the next 20-25 years, timber harvest in MA 8.2 should create a dynamic pattern of open scrub patches totaling ~20,000 acres of 3-12 year post-harvest stands. As the proposed MA 8.4 transitions to maintenance of open oak scrub, the contribution of MA 8.2 to Florida scrub-jay habitat would eventually increase to ~40,000 acres in the next ~40 years. Existing MA 8.4 should contribute ~2,300 acres of scrub-jay habitat and the bombing range and wilderness will likely contribute 8,000-12,000 acres of scrub-jay habitat.

If the proposed additions to MA 8.4 are approved, and the activities needed to generate open scrub habitat are implemented, the total area of scrub suitable for Florida scrub-jay breeding should increase to 65,000-70,000 acres within the next 20-25 years (Figure 12). Management Area 8.4 would comprise over half of this total (~36,500 acres) and would maintain large blocks of high-quality habitat over time. As sand pine harvest shifts back to MA 8.2, longer-term (and less certain) projections could include a total of up to ~85,000 acres of 3-12 year old scrub within the next 35 years.

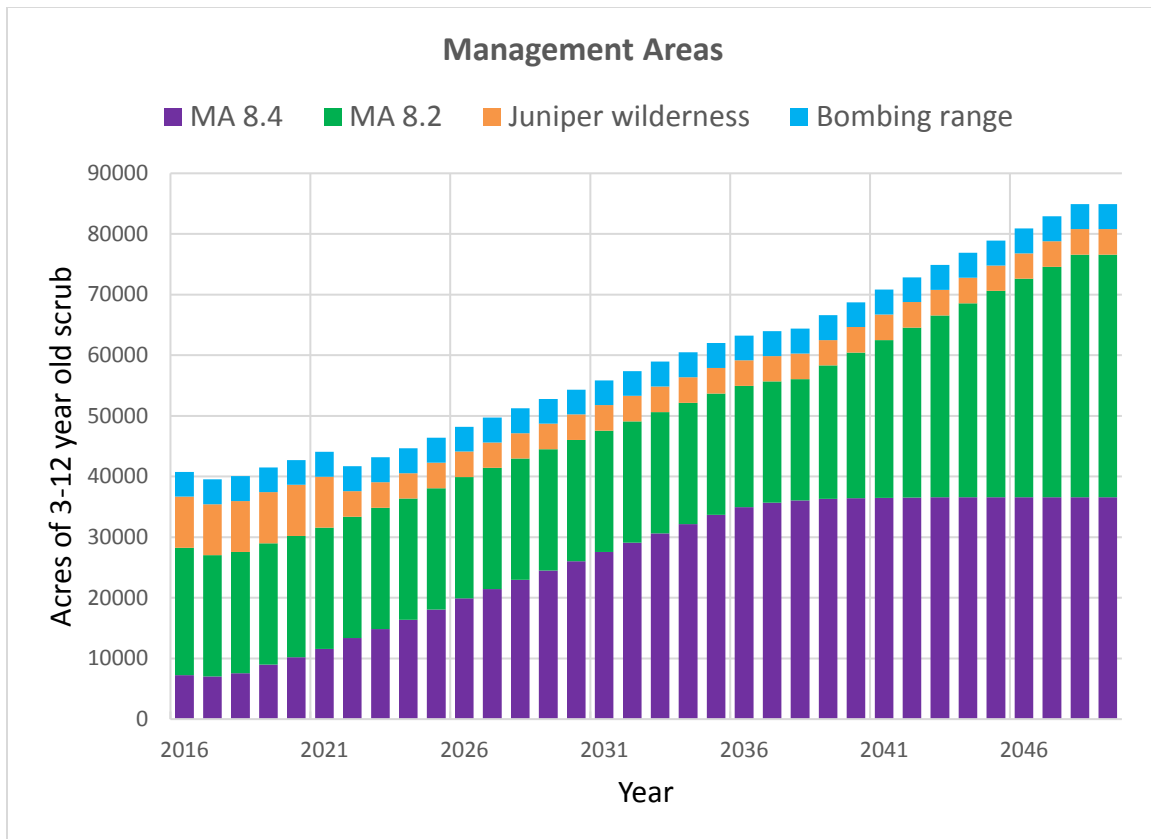


Figure 12. Expected area of future Florida scrub-jay habitat, divided by Management Area.

The ONF prescribed fire program currently burns up to 35,000 acres, primarily in longleaf pine sandhills or flatwoods habitats. Fire is frequently used after sand pine harvest as site preparation to clear debris and stimulate the opening of sand pine cones, but is rarely used to manage mature or unharvested sand pine stands. Maintaining MA 8.4 with prescribed fire would require an increase in the total acres burned per year as well as increased risk associated with burning scrub vegetation. These changes would be implemented incrementally, which should allow the program to be adjusted and for methods of burning scrub to be refined in ways that produce desired results while minimizing risk of wildfire, firefighter injury and effects on the public from smoke. Although the redesignation of Management Areas would have effects related to prescribed fire beyond those of the current program, these activities and their effects are within the scope of the forest plan and FEIS, as modified by several forest plan amendments.

Effects on biological resources

Three categories of species require some level of project-specific analysis: 1) those listed as threatened or endangered under the Endangered Species Act of 1973 or proposed for listing, 2) those identified by the Regional Forester as sensitive species (RFSS) and 3) those identified in the forest plan as monitoring indicator species (MIS). The analysis of the effects of the proposed action on federally listed species is in the Biological Assessment (BA) submitted to the USFWS. That document and the analysis for RFSS below satisfies Forest Service direction for preparing biological evaluations as part of project analysis.

Federally listed species

Regulations and agency direction for implementing the Endangered Species Act require the Forest Service to consult with the US Fish and Wildlife Service on the potential effects of proposed activities on threatened or endangered species, species proposed for listing and designated critical habitat. The species included in the analysis and the effects determinations for each are in Table 2:

Table 2. Federally threatened or endangered species considered in the Biological Assessment for this project.

Species	Determination and explanation
Florida scrub-jay (<i>Aphelocoma coerulescens</i>)	The proposed action may affect and is likely to adversely affect the Florida scrub-jay. There would be increased exposure of nestlings to mortality risk from prescribed burning or pre-burn chopping operations during the nesting season. However, the amount of exposure would be extremely limited due to degrading habitat conditions and a limited number of burning days per year. This limited mortality risk is necessary to maximize habitat productivity for the species. The expanded area of preferred breeding habitat will be capable of supporting ~1,300 Florida scrub-jay groups, which is more than currently exist on all protected lands outside of the Ocala National Forest. This habitat capacity will be in addition to suitable habitat created by continued sand pine harvest in MA 8.2 (~2,000 acres/year) as well as continued prescribed fire and wildfire in the Juniper Prairie Wilderness and Pinecastle Bombing Range. Estimates for habitat dynamics, scrub-jay carrying capacity, displacement from territories and potential destruction of nest is provided in Appendix B of the BA.

Eastern indigo snake (<i>Drymarchon corais couperi</i>)	The proposed action may affect and is likely to adversely affect the eastern indigo snake. Ground-penetrating heavy equipment use during timber harvest actions and post-harvest chopping may harm or kill eastern indigo snake individuals. Due to the secretive nature of the species and its large home range, the anticipated number of individuals impacted cannot be determined, but is not expected to be significant. Any mortality would be the result of chance encounters, and would be comparable to harm under implementation of the current forest plan. Multiple standards & guidelines are in place to protect the eastern indigo snake and an important commensal species, the gopher tortoise. Management of 8.4 MAs would create and continually maintain habitat for both the gopher tortoise and the eastern indigo snake.
Sand skink (<i>Neoseps reynoldsi</i>)	The proposed action may affect and is likely to adversely affect the sand skink. Ground-penetrating heavy equipment use during timber harvest and chopping activities may harm or kill sand skinks. Because of the difficulty in detecting the species due to its fossorial nature, the number of individuals affected cannot be determined but is not expected to be significant as any mortality events would be chance encounters. The proposed action would significantly improve habitat availability and suitability for the sand skink at the landscape level.
Florida bonamia (<i>Bonamia grandiflora</i>)	The proposed action may affect and is likely to adversely affect Florida bonamia. There is potential for Florida bonamia individuals to be damaged or killed by heavy equipment use. However, this species is adapted to disturbance and has demonstrated the ability to recover after the disturbances associated with the proposed action. The change in management from MA 8.2 to MA 8.4 would create and maintain habitat conditions on the landscape that are favorable to the species, and any mortality would not be expected to impact even local populations. Overall, the expected effects from activities implemented under this proposed amendment are within the scope of effects previously disclosed in the Forest Plan BA and evaluated in the USFWS Dec. 18, 1998 Biological Opinion.
Scrub buckwheat (<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>)	The proposed action may affect and is likely to adversely affect scrub buckwheat. There is potential for scrub buckwheat individuals to be damaged or killed by heavy equipment use during timber harvest or chopping

	activities, but the species has a woody taproot which would likely persist through such disturbance. The addition of MA 8.4 areas would create and maintain habitat conditions favorable to the species. Overall, the expected effects from activities implemented under this proposed amendment are within the scope of effects previously disclosed in the Forest Plan BA and evaluated in the USFWS Dec. 18, 1998 Biological Opinion.
Lewton's polygala (<i>Polygala lewtonii</i>)	The proposed action may affect and is likely to adversely affect Lewton's polygala. There is potential for individuals of this species to be damaged or killed by heavy equipment use during timber harvest or chopping activities. Due to low abundance in scrub habitats, the number impacted would not be significant. The change in management from MA 8.2 to MA 8.4 would create and maintain habitat conditions favorable to the species. Overall, the expected effects from activities implemented under this proposed amendment are within the scope of effects previously disclosed in the Forest Plan BA and evaluated in the USFWS Dec. 18, 1998 Biological Opinion.
Scrub pigeonwing (<i>Clitoria fragrans</i>)	The proposed action may affect and is likely to adversely affect scrub pigeonwing. There is potential for individuals to be damaged or killed by heavy equipment use during habitat management activities. However, this species is adapted to disturbance and can persist via its thick rhizome and long taproot. The number of individuals affected cannot be determined but the level of impact is not expected to be significant. Habitat conditions would be maintained or improved as a result of the activities within the proposed amendment. Overall, the expected effects from activities implemented under this proposed amendment are within the scope of effects previously disclosed in a recent BA and evaluated in the USFWS Dec. 17, 2015 Biological Opinion.
Florida manatee (<i>Trichechus manatus</i>), wood stork (<i>Mycteria americana</i>), red- cockaded woodpecker (<i>Picoides borealis</i>), Britton's beargrass (<i>Nolina brittoniana</i>)	No effect. These species do not occur in the project area and would not be impacted by implementation of expected management activities.

A BA describing the proposed action, documenting relevant knowledge of federally listed species that could occur in the affected area and analyzing the potential effects of the forest plan amendment and connected actions was submitted to the US Fish & Wildlife Service, Jacksonville Ecological Services Office, April 6, 2016. Detailed analysis in the BA and the Biological Opinion received from USFWS to conclude the Endangered Species Act consultation process are available on the project website.

Regional Forester sensitive species

The sensitive species in Table 3 below are known to occur or may occur within the areas proposed for designation as MA 8.4. In addition to scrub and open habitat generalist species, some wetland-associated species were included in the analysis because ponds and wet prairies are interspersed with scrub in some MA 8.4 areas.

Table 3. Regional Forester sensitive species considered in this analysis.

Species	Taxonomic group
Florida mouse (<i>Podomys floridanus</i>)	Mammal
Sherman's fox squirrel (<i>Sciurus niger shermani</i>)	Mammal
Florida black bear (<i>Ursus americanus floridanus</i>)	Mammal
Round-tailed muskrat (<i>Neofiber alleni</i>)	Mammal
Florida sandhill crane (<i>Grus canadensis pratensis</i>)	Bird
Gopher tortoise (<i>Gopherus polyphemus</i>)	Reptile
Florida pine snake (<i>Pituophis melanoleucus mugitus</i>)	Reptile
Florida scrub lizard (<i>Sceloporous woodi</i>)	Reptile
Short-tailed snake (<i>Stilosoma extenuatum</i>)	Reptile
Striped newt (<i>Notophthalmus perstriatus</i>)	Amphibian
Mohr's threeawn (<i>Aristida mohrii</i>)	Vascular plant
Florida cacalia (<i>Arnoglossum floridanum</i>)	Vascular plant
Curtiss' milkweed (<i>Asclepias curtissii</i>)	Vascular plant
Ashe's calamint (<i>Calamintha ashei</i>)	Vascular plant
Nodding pinweed (<i>Lechea cernua</i>)	Vascular plant
Silk bay (<i>Persea humilis</i>)	Vascular plant

Florida feathershank (<i>Schoenocaulon dubium</i>)	Vascular plant
Tough bully (<i>Sideroxylon tenax</i>)	Vascular plant
Jeweled blue-eyed grass (<i>Sisyrinchium xerophyllum</i>)	Vascular plant
Showy dawnflower (<i>Stylisma abdita</i>)	Vascular plant

Florida mouse (*Peromyscus floridanus*) - The Florida mouse occurs in xeric upland habitats such as sand pine scrub, scrubby flatwoods, and sandhills. The highest densities occur in sand pine scrub, specifically in early successional scrub following fire (Layne 1992). This is likely due to scrub habitat's higher acorn production, which is a major food source for the Florida mouse. The Florida mouse is nocturnal and a burrow-dwelling species, often building side burrows and nest chambers off the main chamber of gopher tortoise burrows (Layne 1971, 1992; Kinlaw and Grasmueck 2012).

Harvest, chopping, and prescribed burning activities are unlikely to cause direct mortality in Florida mice due to the species' nocturnal habit and burrow-dwelling. Harvest activities are very unlikely to impact the species due to its lower densities in mature sand pine scrub. Design criteria to protect gopher tortoise burrows would also protect Florida mice inhabiting gopher tortoise burrows during harvest and roller-chopping operations. Road maintenance would not directly impact the Florida mouse because the species typically uses such areas for travel only at night and burrow locations are placed away from high disturbance areas.

The open cover conditions and consistent acorn production associated with early successional scrub would indirectly benefit the Florida mouse. The increased scale of early successional scrub in 8.4 MAs would significantly increase the amount of optimal habitat for the species. Layne (1992) highlights the connection between scrub-jay and Florida mouse habitat: "optimal conditions for both the Florida mouse and scrub jay are similar and thus the presence of the jay in scrubs large enough to support a population is a good indicator of high quality *Peromyscus* habitat."

The proposed action would have beneficial impacts on the Florida mouse. The proposed action would increase and sustain high-quality habitat for the species on a large scale. Management activities pose only low risk of impact and are necessary to provide and maintain the high habitat quality for the species. When considered with past, present, and reasonably foreseeable future land management, the management action would provide a beneficial cumulative

impact on the Florida mouse. Early successional habitat would be generated and maintained in a mosaic of different ages across the landscape.

The no action alternative may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the Florida mouse. Maintaining the current management scheme would continue to provide Florida mouse habitat via timber harvest in MA 8.2. However, the vast increase in habitat abundance and quality for the Florida mouse resulting from the proposed changes would not be realized.

Sherman's fox squirrel (*Sciurus niger shermani*) – Fire-maintained sandhills and flatwoods are considered ideal habitat for Sherman's fox squirrels (Kantola 1992). Little data exists on Sherman's fox squirrel use of scrub habitats in Florida, but the species is occasionally observed in scrub habitat on the ONF, most often where scrub borders sandhills or flatwoods habitats. Densities are likely lower in scrub habitat than in sandhills or flatwoods. Areas where mature sand pine borders early successional scrub would provide areas for nesting (mature sand pines) and abundant food sources (scrub oak acorns and sand pine seed). It has been suggested that fox squirrels use alternative acorn sources when turkey oak acorn crops fail, and a similar relationship may exist where scrub borders these optimal habitats and multiple oak species could serve as alternative mast sources (Kantola and Humphrey 1990).

Post-harvest and pre-burn chopping and post-harvest and maintenance burning would be unlikely to directly impact the species due to the lack of a developed canopy of the stand at time of treatment. Road maintenance activities and OHV use are not anticipated to create any direct impacts other than temporary minor noise disturbance. All direct impacts would be expected to have minimal consequences due to low densities within affected habitat.

The creation and maintenance of early successional scrub would indirectly benefit Sherman's fox squirrels maintaining territories in ecotonal areas by providing sustained additional mast sources during turkey oak mast failures. Mast availability may decrease in the short-term after harvest or maintenance burns, but scrub oaks typically begin producing acorns after three years. The loss of mature sand pines as a significant habitat component in proposed MA 8.4 areas would not harm the Sherman's fox squirrel because sand pines are not preferred nesting sites for the species.

The proposed action may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the Sherman's fox squirrel. The

proposed action would benefit the species by providing sustained additional mast sources during crop failures in preferred habitat. Treatment may disturb or displace individuals in project stands, but use of this habitat is low and any negative impacts would be minor. The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a minor beneficial impact to the Sherman's fox squirrel, in particular individuals occupying sandhills habitat adjacent to sand pine scrub habitat. Continued management of 8.2 and 8.4 MAs will provide younger, more mast-productive scrub habitat mixed with mature sand pines.

Maintaining the current management scheme would continue to provide a mix of age classes in the scrub. The proposed action would provide additional mast sources, but the presence of more mature sand pine in the current scheme would provide more mature pines for nesting areas.

Florida black bear (*Ursus americanus floridanus*) – The Florida black bear is the largest land mammal in Florida. Black bears on the Ocala National Forest are most frequently found to use pine flatwoods and sand pine scrub habitats (Wooding and Hardisky 1994). However, black bears require habitat of varied ages to satisfy natural history requirements throughout their life span (i.e., food, escape cover, denning cover, travel corridors). Bears consume an omnivorous diet, including acorns, berries, saw palmetto fruit, insects, and occasionally vertebrate prey. Acorn mast is an important component in the black bear diet, especially in the fall (Maehr and Brady 1984). Black bear population estimates from the 1990s ranged from 500 to 1,000 bears for the entire state (Maehr 1992). However, a 2015 study produced a population estimate of 1,084-1,564 black bears within the Ocala-St. Johns population (Humm et al. 2016). Applying the density estimates (0.20-0.26 bears/km²) to the 383,689 acres of the ONF produces a forest-wide population estimate of 310-400 bears.

Post-harvest roller chopping, post-harvest burning, and maintenance burning occurring after chopping would not directly harm black bears because stands where these actions would occur are poor bear habitat. Pre-burn roller-chopping and maintenance burning without prior roller-chopping occurring during the denning months (January 1 to April 15) would cause denning females within these stands to flee and likely abandon cubs. Abandoned cubs could in turn be killed by chopping or burning activities. However, the high noise disturbance associated with these activities would likely provide ample warning to denning females and therefore the probability of cub abandonment would be low.

The number of black bear cubs that could potentially be impacted by these activities is difficult to estimate, but would be unlikely to be high enough to significantly impact recruitment of young bears into the breeding population. The number of cubs affected would be limited by several factors. First, only a small proportion of the total potential denning habitat would be affected on a yearly basis during the denning period. Annual burning and chopping requirements would begin at 750 acres and gradually increase to 3,000 acres during the initial implementation phase and would max out at approximately 3,500 acres during the maintenance phase of implementation. These annual treatment acres would be spread out over multiple proposed 8.4 Management Areas and would also be spread throughout the year (although prescribed fire is typically done in the fall, winter, and spring, and chopping is typically done in the fall). Given that the mean home range size for female bears within the core scrub habitat on the ONF was 6,397 acres (Moyer et al. 2007), the chances of a high number of females denning in habitat to be treated in any single year would be low, even in the maintenance phase.

Additionally, scrub habitat at the time of treatment scheduled to be chopped or burned may not be in a condition suitable for black bear denning. Florida scrub-jay habitat is generally quite open, with optimal habitat described as having 10-40% open bare ground cover present (Fitzpatrick et al. 1991, Breiningner 1992). Although scrub habitat in need of treatment would have become poor in quality for Florida scrub-jays and lack the required amount of open bare ground, it still may not be dense and thick enough to be high quality denning habitat for female black bears. Furthermore, with the large home range of female black bears and the continued presence of 140,000 acres of sand pine scrub in Management Area 8.2, there would likely be mature, closed canopy sand pine scrub available as denning habitat in most female bears' home ranges. Finally, no chopping would be conducted from March 15 to July 15. Exclusion of chopping during this time period was incorporated to avoid impacting Florida scrub-jays that may be nesting in scrub habitat in need of treatment.

The transition from mature sand pine scrub to early successional xeric oak scrub within the proposed areas would have mixed indirect effects on black bears. An increase in early successional xeric oak scrub on the landscape would decrease denning habitat availability for female black bears. As described above, high quality Florida scrub-jay habitat is poor denning habitat for black bear females. The patches of open bare ground that Florida scrub-jays and other scrub endemic species (both animals and plants) favor generally do not provide the continuous thick, dense cover that female black bears prefer for denning. On the

ONF, parturient female black bears (females that gave birth to cubs during the winter) chose to den in thick vegetation for concealment and presumably because denning females can hear potential predators approaching through the thick vegetation (Garrison et al. 2012).

Although denning habitat is not considered to currently be a limiting factor for black bears on the Ocala NF (W. McCown, personal communication), three factors would mitigate the impacts of this increase in early successional scrub: the presence of denning habitat within the early successional scrub as a result of natural/applied variability, the large home range of black bears, and the continued presence of mature, canopied scrub on the landscape. The proposed management areas with ponded scrub or embedded prairie systems (e.g., the proposed Boyd Lake, Hopkins, Bombing Range East, and Lake Mary MAs) would naturally provide unburned areas (i.e., fire shadows) resulting from the presence of wetlands or other non-receptive vegetation. It was suggested that small (2-5 acre) clumps of unburned, untreated rough with a dense midstory component within treated areas would provide intermittent denning areas (W. McCown, pers. comm.). Localized areas of dense vegetation resulting from the above applied and natural sources of variability would provide such sources of denning sites within otherwise open scrub habitat. Second, the large home range size of female black bears means that bears could still easily incorporate the young xeric oak scrub in the proposed MAs as a portion of their home ranges while also including the mature sand pine habitat that would occur in Management Area 8.2 as well as other suitable habitats such as flatwoods.

Increased early successional xeric oak scrub on the landscape would indirectly benefit black bears through an increase in food availability, mainly through the higher scrub oak and palmetto abundance compared to mature sand pine scrub. Both scrub oaks and palmetto thrive in open, high-light conditions and are known to produce heavy mast within 2-7 years after fire or mechanical vegetation removal (Abrahamson and Layne 2003, Duever 2011). Increased food availability could have various potential positive effects on black bears, including improved nutritional condition and reduced competition for space.

In summary, the proposed action may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the Florida black bear. The ONF provides habitat for one of the largest Florida black bear populations and this would remain true under implementation of the proposed changes. Increasing the amount of early successional habitat on the landscape would have a mix of impacts on the Florida black bear, but ultimately would provide for greater habitat diversity and any negative indirect impacts would be mitigated by applied and natural sources of variability within the habitat. The

management action, when considered with past, present, and reasonably foreseeable future land management, would provide an overall beneficial impact to the Florida black bear by continuing to provide a mosaic of oak scrub habitat in different age classes.

The no action alternative may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the Florida black bear. The areas proposed to change to MA 8.4 would remain in MA 8.2 and would continue to provide cover for black bears in thick, mature sand pine scrub. The greater acorn production and increase in landscape-scale age class diversity from the increase in early successional scrub would not be realized.

Round-tailed muskrat (*Neofiber alleni*) – Round-tailed muskrats are moderately large rodents that inhabit shallow marshes with emergent vegetation. The species feeds primarily on roots and stems of aquatic and semiaquatic vegetation and uses emergent vegetation as cover. Round-tailed muskrats do not appear to have a defined breeding season, and females can produce litters of 2-3 young multiple times throughout the year (Birkenholz 1963).

Any impacts to the round-tailed muskrat would be limited to prairie systems with dense emergent vegetation embedded within scrub habitat. Any roller-chopping treatments would be highly unlikely to pose any direct mortality risk to muskrats since dry, upland scrub habitat is the target for chopping treatments. Prescribed burning activities would also be unlikely to cause mortality as muskrats typically use vegetation rooted in lake/pond bottoms for cover and thus not likely to burn. Muskrats occupying typical suitable habitat would only be exposed to impacts if dispersing away from a lake or pond edge. The round-tailed muskrat would receive positive indirect benefit from prescribed burning via stimulation of grass growth in marshes/prairies. Burning would not occur at a high enough frequency that negative impacts to wetland integrity or function would be a concern.

The management action alternative may impact round-tailed muskrat individuals but is not likely to cause a trend to federal listing or a loss of viability. Prescribed burning presents a small risk of direct impacting muskrats, but would provide benefit to marsh/prairie health. The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial cumulative impact to round-tailed muskrats. Continued management of marshes and wet prairies in other management areas would add to the benefits of the application of fire to marsh and prairie ecosystem health from the proposed action.

The no action alternative may impact individuals but is not likely to cause a trend to federal listing or a loss of viability for the round-tailed muskrats. Some marsh/prairie habitats would continue to be burned under the current management scheme. However, the proposed action would introduce fire into areas that the current scheme may be able to incorporate because of high fuel loading in the surrounding scrub. The lack of fire in these areas may have negative impacts on marsh/prairie health.

Florida sandhill crane (*Grus canadensis pratensis*) – The Florida sandhill crane is a non-migratory subspecies of the sandhill crane. The subspecies occupies pastures, prairies, emergent palustrine wetlands, and transitions between pastures/prairies and forested habitats (Nesbitt 1992). Florida sandhill cranes prefer to forage in pasture/prairie-like conditions with open, clear ground. Cranes form monogamous pairs and usually construct raised nests surrounded by shallow standing water.

Florida sandhill cranes prefer to forage in pasture/prairie-like conditions with open, clear ground and thus chopping activities would not directly impact foraging as the habitat (both before and after chopping) would be unsuitable for foraging. Prescribed burning would be unlikely to directly impact nesting as the species usually builds nests over standing water. Burning or chopping could disturb cranes nesting or foraging near treatment areas, but such disturbance would only be temporary and limited to noise disturbance. Prescribed burning in embedded wet prairies could indirectly benefit cranes by creating a flush of insect prey that they may exploit, especially at stand edges close to prairies.

The proposed action would have overall beneficial impacts for the Florida sandhill crane. Foraging habitat quality would improve from prescribed burning activities in ponded scrub or prairie systems surrounded by scrub habitat. Negative impacts would be limited to minor, temporary noise disturbance. The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial cumulative impact on the Florida sandhill crane. Continued management of wetlands and wetland/forest ecotones throughout the landscape would add to the benefits of the application of fire to marsh and prairie ecosystem health from the proposed action. There are no anticipated future actions that would result in a negative impact on wetland habitats.

The no action alternative may impact individuals but is not likely to cause a trend to federal listing or a loss of viability for the Florida sandhill crane. Lack of fire in

areas currently too problematic to burn because of high fuel loading in the surrounding scrub may have some impacts on marsh/prairie health, and therefore could impact the quality of foraging habitat.

Gopher tortoise (*Gopherus polyphemus*) – The gopher tortoise is an important species within many Florida ecosystems due to large number of species that use the active and inactive burrows for cover or breeding purposes, including the Florida mouse and the eastern indigo snake (Layne 1992, Moler 1992). Gopher tortoise densities are lower in scrub habitats than in sandhills habitats due to the low abundance of edible herbaceous ground cover plants in the scrub (Diemer 1992, Castellon et al. 2012). Within the scrub, habitats that have little or no canopy cover or otherwise provide more abundant ground cover (such as scrubby flatwoods) likely have higher tortoise densities. Although scrub habitats support lower densities of gopher tortoises, the scrub is significant because the vast amount of habitat available can collectively support a large number of individuals.

Post-harvest chopping and post-harvest prescribed burning would not directly impact the gopher tortoise because the habitat would be unsuitable at the time of treatment. The stand would not have well-developed ground cover components at the time of treatment. Pre-burn chopping and maintenance burning treatments would expose some gopher tortoises to mortality risk, but this number would be very limited because individuals could retreat to burrows and the burrows would be marked and protected with 25-foot buffers prior to chopping operations per design criteria in the forest plan (Standard & Guideline WL-11).

The proposed amendment would indirectly benefit the gopher tortoise by creating and maintaining suitable habitat for the species. Studies have shown increases in clutch size, growth rate, and rate of mass gain in gopher tortoises after canopy removal, probably in response to food increases (Diemer-Berish and Moore 1993). Chopping and prescribed burning would also provide indirect benefit by stimulating new palatable vegetative growth in forage species. Although gopher tortoise densities in the scrub are typically lower than in sandhills habitats, the vast amount of habitat that would become suitable could significantly increase overall gopher tortoise abundance on the ONF.

Overall, the proposed action may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the gopher tortoise. In fact, the indirect effects of generating more open conditions would have beneficial impacts for the gopher tortoise. The management change would

provide benefit by increasing food availability and creating/maintaining an open habitat structure. Minor disturbance is possible and direct impact is remotely possible, but mitigations provided by design criteria minimize exposure to negative impacts. The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial impact to the gopher tortoise by allowing land managers to treat needed acreages of habitat that cannot be maintained with fire or other means. This management scheme provides a consistently large area of open habitat for the gopher tortoise.

Maintaining current management would continue to provide gopher tortoise habitat via timber harvest in MA 8.2 areas. However, the vast increase in habitat abundance for the gopher tortoise resulting from the proposed action would not be realized.

Florida pine snake (*Pituophis melanoleucus mugitus*) – The Florida pine snake is a large snake that prefers xeric habitats with sandy soils (Franz 1992). The species is highly fossorial and is almost exclusively associated with pocket gopher and gopher tortoise burrows (Franz 1992). Pocket gophers, bird eggs, rabbits, and rodents have been noted as food items. Little is known about the species' life history.

Both methods of chopping and burning treatments would be unlikely to cause mortality in Florida pine snakes, but a small mortality risk would be present for pine snakes inhabiting treatment stands. Individuals could avoid machinery by leaving the treatment stand or by taking refuge in gopher tortoise burrows, which would be protected from machinery, or in pocket gopher burrows.

Increasing the amount of early successional scrub on the landscape would indirectly benefit the Florida pine snake by providing large blocks of suitable habitat. The species spends much of its time underground and would also benefit from the sustained increase in the gopher tortoise population (and gopher tortoise burrows) that would result from early successional scrub being maintained on the landscape. The activities would also create a mix of exposed and shaded areas for pine snakes to thermoregulate, and would provide habitat conditions suitable for prey species such as pocket gophers and other rodents. Florida pine snakes have large home ranges (up to several hundred acres) and use a variety of habitats and age classes throughout their daily and life cycles (Franz 1992). The proposed MA changes would provide for a variety of ages

within MA 8.4 and larger diversity in the greater landscape that includes surrounding MA 8.2.

For the Florida pine snake, the proposed action may impact individuals, but will not likely contribute to a trend towards federal listing or cause a loss in viability to the population or the species. Individuals may be exposed to a minor degree of mortality risk, but the increase in early successional scrub would increase habitat quality for important prey species (the pocket gopher, other rodents) and commensal species (the gopher tortoise) over the short term, and provide a variety of age classes within sand pine scrub habitat over the long term. No known past, present, or reasonably foreseeable future actions would impact the Florida pine snake beyond effects that have already been disclosed. Continued implementation of activities set forth in the 1999 LRMP would continue to provide a variety of habitat types and age classes across the landscape for Florida pine snakes. A patchwork of different age classes provides for the various life history needs of a species with a large home range such as the Florida pine snake.

The no action alternative may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the Florida pine snake. Maintaining the current management scheme would continue to provide habitat via timber harvest in MA 8.2 areas. The increase habitat abundance and habitat quality for prey and commensal species from the proposed action would not be realized.

Scrub lizard (*Sceloporous woodi*) – The scrub lizard is a small, spiny-scaled lizard endemic to scrub habitat. The species prefers early successional scrub habitat with open, sandy patches and remain in such habitat until the bare sand begins to become covered with leaf litter, lichens, and coarse woody debris. The species feeds on ants, spiders, beetles, and other small arthropods (DeMarco 1992). Scrub lizard females lay an average of 4 eggs per clutch during April – October, and multiple clutches can be laid during the breeding season (Jackson and Telford 1974).

Post-harvest chopping/burning and maintenance burning with a prior chopping treatment would be unlikely to directly impact scrub lizards because stand condition would unsuitable at the time of treatment. Pre-burn chopping or maintenance burning without a prior chopping treatment may cause a limited amount of mortality or egg destruction. Scrub lizards are quick enough to evade physical impacts from machinery or fire treatments and could use burrows for

protection. Although some minor risk of mortality and egg destruction exist, the indirect benefits of treatment outweigh potential egg loss.

The proposed action would have widespread and significant indirect benefits to scrub lizards. Scrub lizard abundance has been shown to be positively correlated with open scrub conditions and negatively correlated with canopied, mature sand pine forest (Greenberg et al. 1994). Thus improvements in habitat quality for the scrub-jay would result in similar habitat quality increases for the scrub lizard. However habitat quality would begin to decrease sooner over time for the scrub lizard than for the scrub-jay, because the scrub lizard responds quickly to changes in the substratum during the process of a stand aging, as bare ground decreases and leaf litter, lichens, and coarse woody debris increase over time (Tiebout and Anderson 2001). Increased habitat quantity would improve habitat connectivity and decrease genetic isolation, a concern for species with limited dispersal ability and high habitat specificity (Tucker et al. 2014).

In addition to indirect benefits from increased habitat quantity and quality, scrub lizards would also benefit from an increase in patch size (i.e., the size of a treatment unit) as forest stands become consolidated through final harvests. Hokit and Branch (2003) observed a positive association between patch size and scrub lizard recruitment and survivorship, thereby resulting in increased abundance as patch sizes increase. On a larger scale, within the larger management areas the dispersal distances scrub lizards would need to travel to suitable habitat would decrease because the larger area would be in an early successional state.

Overall, the proposed action would provide beneficial impact for the scrub lizard. Habitat quality and quantity would drastically increase for the scrub lizard. Chopping and burning may introduce minor risk of mortality and egg destruction, but ultimately will be beneficial by improving habitat quality and quantity on the landscape over the long term. No known past, present, or reasonably foreseeable future actions would impact the scrub lizard beyond those already disclosed in the forest plan FEIS. Continued implementation of activities set forth in the 1999 LRMP in other MAs such as MA 8.2 would continue to provide early successional scrub and serve as important corridors between the habitat created in the proposed new 8.4 MA areas.

The no action alternative may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the scrub lizard. Maintaining the current management scheme would continue to provide scrub lizard habitat via timber harvest in MA 8.2 areas. The benefits from

defragmentation and the vast increase in habitat abundance and quality for the scrub lizard would not be realized.

Short-tailed snake (*Stilosoma extenuatum*) – The short-tailed snake is highly fossorial and is rarely seen above ground. Very little is known about the ecology of this species due to its secretive nature. Short-tailed snakes are primarily associated with longleaf pine-turkey oak habitat, but are occasionally found in sand pine scrub adjacent to its primary habitat (Campbell 1992). Small snakes, such as the Florida crowned snakes (*Tantilla relict*a), are thought to be prey items.

Any impacts to the short-tailed snake would be limited to scrub near longleaf pine-turkey oak habitat. Little information exists on this species' ecology in sandhills, thought to be the primary habitat, and much less exists on its relationship with scrub habitat. The species' fossorial nature suggests that it would be more likely to occupy younger scrub habitat versus mature scrub habitat due to the more open underground structure of soils without mature sand pines. Campbell and Christman (1982) indicate that short-tailed snakes were "more abundant in early successional stages than they are in the advanced stages with a full pine canopy, dense evergreen shrub layer, and matted ground cover."

Roller-chopping activities present a risk of mortality or egg destruction for individuals or eggs residing beneath debris or just under the soil surface. Since the species is assumed to be heavily fossorial and is rarely seen, the mortality risk would be limited due to limited exposure. Any short-tailed snakes aboveground during prescribed burning activities could retreat underground to avoid harm. Chopping and prescribed burning activities would provide indirect benefit by reducing coarse woody debris and creating open areas, habitat characteristics presumably favorable to the species based on similarities to the favored longleaf pine-turkey oak association.

Overall, the proposed action may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the short-tailed snake. Treatment may create minor disturbance, but ultimately will improve habitat quality over the short term. No known past, present, or reasonably foreseeable future actions would impact the short-tailed snake. Continued restoration of sandhills habitat within the ONF would improve its suspected primary habitat, and implementation of the proposed action would augment such restoration by providing habitat along the periphery of the main habitat.

The no action alternative may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for the short-tailed snake. The current management scheme would still provide habitat in the primary habitat type for the species (sandhills) as well as the sandhills-scrub ecotone. The increased application of prescribed fire in certain scrub-sandhills ecotones and improved habitat quality in secondary habitat would not be realized in the no action alternative.

Striped newt (*Notophthalmus perstriatus*) – The striped newt is a small salamander that inhabits xeric upland habitats and breeds in temporary wetlands. The species breeds in ephemeral ponds in sandhills and scrub habitats and then disperses into upland habitats. Striped newts have a complex life history with aquatic and terrestrial phases and multiple possible pathways through the phases (Johnson 2001). Newts feed on fly larvae and other similar-sized prey items while in ponds.

Past surveys have indicated presence of striped newts in ponds within the proposed Lake Mary and Hopkins Scrub-Jay Management Areas. Presence of striped newts in other ponds within proposed Scrub-Jay MAs is possible, as only a portion of ponds within the action area have been surveyed. Adult striped newts in sandhills are known to disperse from ponds into surrounding uplands, but little is known of the species' habitat use of scrub other than their presence in breeding ponds. Enge (2011) notes that “the scrub habitat surrounding many of these ponds is probably unsuitable for survival of newts” and suggests that edges of wetland systems (e.g., basin marshes, wet prairies) embedded in the scrub could contain enough ground cover and canopy cover to serve as suitable upland habitat in “the surrounding sea of scrub.”

All chopping treatments would adhere to established design criteria that provide a 700-foot buffer around known occupied ponds. This protects paedomorphic adults within ponds and the majority of any terrestrial adults using the surrounding scrub habitat (if such use occurs) or pond margins from being impacted. Prescribed burning close to or within pond margins may expose some newts to mortality risk, but newts would most likely be occupying areas (e.g., maidencane, submerged/ moist vegetation) that would be resistant to fire effects. Prescribed burning could potentially harm striped newts occupying the upland scrub during treatment, but as described above, it is unlikely that the species uses upland scrub over a sustained period, if at all.

If striped newt use of upland scrub is indeed minimal and individuals are mostly confined to breeding ponds and associated wetlands and pond margins, then a landscape-scale increase in early successional scrub would have little indirect impact. Implementation of the proposed action would indirectly benefit striped newts by increasing the application of fire in ponded scrub habitats in proposed new MA 8.4 areas and in other MAs embedded within proposed MA 8.4 areas (e.g., the Farles Prairie system within the proposed Bombing Range East MA). Johnson (2001) states that “fire probably plays a crucial role in maintaining productive breeding ponds for striped newts and other pond-breeding amphibians in southern Coastal Plain”. This role may be even more important in the scrub, where striped newt metapopulations may not emigrate from their breeding ponds or pond margins.

Overall, the proposed action would provide beneficial impact for the striped newt. The increase in early successional scrub probably will have little impact on the species and an increased incidence of prescribed fire in ponds and prairie systems surrounded by scrub would benefit the striped newt. No known past, present, or reasonably foreseeable future actions would impact the striped newt. Continued restoration of sandhills habitat within the ONF would improve its suspected primary habitat, and implementation of the proposed action would augment such restoration by improving conditions within the scrub.

The no action alternative would have minor adverse indirect impacts on the striped newt, but would not be likely to cause a trend towards Federal listing or a loss of viability. The current management regime values burning scrub ponds and embedded wet prairies, but burns would likely occur more frequently and over more ponds in the proposed action, when fuel loading in the surrounding scrub would be lower. Thus no action would likely result in fewer ponds being treated versus the proposed action.

Sensitive plant species associated with scrub habitat (all) – The sensitive plant species associated with scrub habitat are herbaceous/ground cover or shade-intolerant understory plants that require open habitat conditions (e.g., lack of a canopy, open areas of bare sand). Many of these species are relatively common in fire-maintained open scrub, and are only recognized as rare or sensitive because so much of this habitat has been lost to development, agriculture or fire suppression. Plant species found in scrub habitats possess a variety of strategies for persisting in habitats with frequent disturbance such as fire such as resprouting from rootstock after fires, recovering via seedling

recruitment, and having seeds that persist in the seed bank or are germinated by exposure to fire or smoke (Menges and Kohfeldt 1995).

Post-harvest roller-chopping would be unlikely to directly impact these species as the site would not have been under open conditions for long enough for most species to become established. Pre-burn chopping and maintenance burning would present some risk of direct impact to scrub-associated sensitive species, but most scrub endemic species possess a hardy bulb or other underground root structure that allow the plants to resprout after disturbance. Individuals of some species may be unable to withstand the disturbance from pre-burn chopping, but habitat quality would ultimately improve and seed bank sources could potentially provide for new recruitment in the newly suitable habitat. Roller-chopping and prescribed burning would provide indirect benefit to these species by fostering open conditions from the reduction of coarse woody debris. Prescribed burns of moderate intensity would create a flush of nutrients for plants. Burning would increase germination and stimulate re-sprouting and growth in fire-adapted sensitive species.

For the sensitive plant species, the proposed action may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability. The proposed treatments present only a limited amount of risk of direct impacts to individual plants, much less pose any risk to the local populations of these sensitive species. The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial cumulative impact to sensitive plant species associated with sand pine scrub. Continued landscape-scale scrub habitat management would help provide a mix of early successional habitats required by these species over the long term.

Monitoring indicator species

Under the 1976 National Forest Management Act (NFMA), the Forest Service is charged with managing National Forests to provide for a diversity of plant and animal communities consistent with multiple-use objectives. Management indicator species (MIS) are one tool used to accomplish this objective. It is not feasible to monitor how management actions affect all species or communities, so MIS are identified “because their population changes are believed to indicate the effects of management activities” (1982 Planning Rule, formerly at 36 CFR 219.19(a)(1)). Monitoring is usually done at the forest level rather than for individual projects, but MIS species that may occur in project areas should be considered in project-level analysis.

The National Forests in Florida recently amended the Forest Plan to revise the MIS list for the forest (Amendment 10, USDA 2011). The Forest Plan currently identifies as Florida scrub lizard and Florida scrub-jay as MIS for scrub habitat. The effects of the proposed amendments to the forest plan on these species are disclosed, respectively, above and in the Biological Assessment.

Effects on timber harvest and output of forest products

The total area of sand pine timber harvest will be unaffected by the proposed MA redesignation and would not exceed (on average) the forest plan objective of 3,900-4,100 acres/year. Completing the transition of MA 8.4 areas to open scrub will require ~2,000 acres of timber harvest per year in those areas for 20-25 years. During this time, up to another ~2,000 acres would be harvested in MA 8.2. After the MA 8.4 areas are harvested, the sand pine timber base would decrease from ~191,000 acres to ~140,000 acres and commercial sand pine timber harvest would be conducted almost exclusively in MA 8.2. Although this is a proportionally large change, there will still be sufficient area for a sustained harvest of ~4,000 acres/year in perpetuity. Sand pine grows quickly and reaches commercially marketable size within as little as 25-30 years, so a shorter average harvest rotation is suitable for this species (Burns and Honkala 1990, Outcalt 1997). Additionally, this shortened harvest rotation would be within the desired conditions for MA 8.2 and would still meet the original forest plan objective of using timber harvest to provide valuable forest products for the local economy while replicating the natural 10-100 year fire-return intervals in scrub (USDA 1999b, Sekerak and Hinchee 2001). In summary, implementation of this forest plan amendment would have few short-term effects on the ONF timber program. Sand pine harvest would continue throughout the forest and the designation of 51,000 acres as MA 8.4 would not change the potential timber output of the forest.

Effects on heritage resources

Heritage resources are protected regardless of MA designation. However, there is greater potential for damage to resources in Management Areas that allow ground-disturbing activities such as timber harvest, roller chopping and road construction. Knowledge about the location and type of heritage resources that are present in the area reduces the likelihood of such damage occurring.

In general, the sand pine scrub habitats proposed for designation as MA 8.4 have low probability of significant heritage resources being present. Future projects would be subject to heritage review, including any required surveys in currently unsurveyed areas and assessment of the potential effects of the activities if sites are present. Any activities authorized by future projects would be subject to the forest plan standards and guidelines for protecting heritage resources (USDA 1999a, p. 3.5-3.7). Additionally, future projects implementing management changes would include consultation with the State Historic Preservation Office and tribal historic preservation offices.

Based on current knowledge of the project area and procedures in place to avoid adverse effects, it is unlikely that the proposed designation of Management Areas and subsequent management activities will result in damage to heritage resources.

Effects on recreation opportunities

Designated recreation sites and trails would not be directly affected by the proposed action. Recreation-oriented management areas adjacent to areas proposed for designation as MA 8.4 will not be altered. Forest Service staff have not fully assessed opportunities for recreational development in the areas proposed for MA 8.4 designation, but open scrub habitats are not ideal for many recreation activities. Creation of open scrub habitat may improve opportunities for birdwatching and passive viewing of rare scrub species. Hiking, hunting or other authorized uses of the areas may be affected by timber harvest, prescribed fire and the resulting open conditions, with some users perceiving these changes as beneficial and others as detrimental to their experience. Regardless, a diversity of recreation opportunities will remain available to the public both on the areas proposed for designation as MA 8.4 and throughout the rest of the forest.

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5. INDIVIDUALS AND ORGANIZATIONS CONSULTED

Interdisciplinary team members:

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Jay Garcia – wildlife biologist, Ocala National Forest

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Michael Drayton – fire management officer, Ocala National Forest

Matthew Trager – forest planner, National Forests in Florida

Jason Drake – forest ecologist, National Forests in Florida

Agencies and individuals consulted:

US Fish & Wildlife Service (Todd Mecklenborg – Florida scrub-jay recovery team lead, Jacksonville Ecological Services Office; Stan Simpkins – Consultation biologist, Jacksonville Ecological Services Office)

Florida Fish and Wildlife Conservation Commission

Members of the Florida scrub-jay recovery team

The members of the public or representatives of agencies and organizations who commented during the project scoping period are listed in Appendix 1.

6. DRAFT FINDING OF NO SIGNIFICANT IMPACT

The CEQ NEPA regulations require considering the context and intensity of effects when determining the significance of proposed actions (40 CFR 1508.27). The analysis above and the evaluation of context and intensity factors below suggest that the proposed amendment will not significantly impact the environment.

Context

The proposed changes to the forest plan would occur in the context of ongoing management implementing the National Forest in Florida's 1999 Land and Resource Management Plan (i.e., the forest plan). The Ocala National Forest is truly a multiple-use forest, serving thousands of visitors, providing a range of forest products and comprising important high-quality habitat for many rare species. The proposed changes to the plan would increase the proportion of the forest dedicated to open scrub habitat, which is among Florida's most imperiled ecosystems, while maintaining other uses of the forest. Except for the largely beneficial effects of the proposed changes in Management Area designation for several rare species that prefer open scrub habitats, implementing this plan amendment would not result in environmental consequences beyond those already considered in the forest plan EIS (USDA 1999b) or previous plan amendments.

Intensity

Intensity is a measure of the severity, extent, or quantity of effects, and is based on information from the effects analysis of this EA. The effects of this project have been considered with an analysis that is responsive to concerns and issues raised by the public. The Forest Service has taken a hard look at the environmental effects using relevant scientific information and knowledge of site-specific conditions gained from field visits. Intensity of effects related to the following ten factors was considered:

- 1. Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.** The analysis provided in the EA and Biological Assessment (BA) recognizes and discusses potential adverse effects of implementing the proposed changes. Specifically, maintaining open scrub habitat will require activities such as roller-chopping and prescribed fire that will temporarily reduce habitat quality for some species. However, the scrub

ecosystem requires periodic disturbance, primarily through fire, and the effects of maintaining open scrub across the forest will be beneficial for populations of many rare plant and animal species.

2. **The degree to which the proposed action affects public health or safety.** Implementing the proposed changes, like all forest management, entails some level of risk. The Ocala National Forest has an active prescribed fire program and has extensive experience using fire to reduce hazardous fuels and promote ecological integrity of fire-dependent ecosystems. The increased use of prescribed fire in scrub could result in smoke or wildfire, but these risks are not beyond those already inherent in prescribed fire programs. Sand pine stands have a high risk of wildfire, so converting dense, mature sand pine stands to open scrub should reduce the possibility of large wildfires that could endanger public health and safety.
3. **Unique characteristics of the geographic area such as the proximity to historical or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.** The ONF is the largest tract of Florida scrub habitat, and this amendment will promote improved management by incorporating the best available scientific information into forest plan direction for managing this unique ecosystem.
4. **The degree to which the effects on the quality of the human environment are likely to be highly controversial.** Several comments received during the project scoping period were critical of the ONF's scrub management but generally supported the idea of maintaining more open scrub habitat. The ecological benefits of increased prescribed fire in scrub and the importance of open scrub for many rare species are widely recognized. There is some disagreement over optimal fire regime in scrub, as well as spatial arrangement of patches at various successional stages, but these disagreements among scientists and management practitioners are not highly controversial. The National Forests in Florida will consider these suggestions, as well as any others received during a designated comment period.
5. **The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.** Implementing the proposed changes to the forest plan would not result in highly uncertain, unique or unknown risks. All of the activities that are likely to result from the proposed changes have been used on the forest, though some at smaller scales. The effects of scrub management activities have been extensively

analyzed in the forest plan EIS (USDA 1999b) and previous amendments, and have been implemented and monitored.

6. **The degree to which the action may establish precedent for future actions with significant effects or represents a decision in principle about a future consideration.** Authorization of the proposed changes to the forest plan are unlikely to establish a precedent for future actions with significant effects. All future projects proposing forest management actions to implement the amendment would undergo effects analysis and public involvement, including evaluation of potential significant effects.
7. **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.** This project does not authorize any particular, site-specific land management activity. The expected effects of reasonably foreseeable activities are generally beneficial or within the scope of previous analysis that have not found significant effects. Projects proposing implementation of the amended forest plan direction would be subject to site-specific analysis that will include consideration of potential significant effects.
8. **The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.** This project does not authorize any particular, site-specific land management activity. Projects proposing implementation of the amended forest plan direction would be subject to site-specific analysis that will include consideration of potential effects on heritage resources and consultation with tribes and the State of Florida Office of Historic Preservation. In general, scrub habitats on the ONF contain few historical or prehistoric cultural resources.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. This project does not authorize any particular, site-specific land management activity. However, we analyzed the potentially effects of implementing the proposed changes on sensitive species and species listed as threatened or endangered under the

Endangered Species Act of 1973. The analysis was provided to the US Fish and Wildlife Service in a Biological Assessment that recognized potential adverse effects on individuals of several protected species while generally benefiting their populations through more and higher quality habitat. The US Fish and Wildlife Service provided a Biological Opinion concluding that the potential effects of the actions would not jeopardized the continued existence of listed species and would benefit many open scrub specialists.

- 9. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.** The proposed changes to the forest plan, if implemented, would not violate Federal, state or local laws or requirements for the protection of the environment. Forest plan standards and guidelines, in addition to requirements for timber harvest and prescribed fire, align implementation activities with relevant laws and regulations. Additionally, both this proposed amendment and future projects proposing implementation activities would include opportunities for state agencies to provide comments and evaluate consistency of proposed actions with state regulations.

APPENDIX 1. SCOPING COMMENTS

Regulations for NEPA and forest planning require a scoping process (40 CFR 1501.7, 36 CFR 220.4(e), 36 CFR 219.16) to invite comments from interested and affected parties to identify issues related to the proposed action. On Nov. 9, 2015, a request for comments on the proposed action was distributed to the Ocala National Forest project mailing list as well as individuals and agencies involved in Florida scrub-jay research and management. This request for comments was also posted to the project website and a legal notice describing the proposed action and announcing the scoping period was published in the Ocala Star Banner. The legal notice stated that Nov. 9 to Dec. 7, 2015 would be the designated period during which scoping comments could confer standing to object to the project. The scoping period was extended until Jan. 6, 2016 to allow several interested parties to comment who were not able to comment during the original scoping period. Eight individuals or representatives of groups, organizations or agencies commented on the proposed action. The summarized comments received during the scoping period (in the order they were received) are below; the complete comments are part of the record for this project and are available upon request. Substantive formal comments received during this period may be the basis for objections to a draft decision for this project.

Individual, affiliation and date comment was received	Summarized comments
Reed Bowman, Archbold Biological Station, Nov. 11, 2015	<ul style="list-style-type: none"> - Expressed support for the proposed action - Suggested that adaptive management including monitoring of pre-harvest stand conditions and post-harvest habitat and scrub jay use to improve jay colonization and population growth in new MA 8.4 areas - Suggested that spatial modeling of potential MA 8.4 areas could improve habitat connectivity - Suggested that timing of final sand pine harvest (specifically harvesting stands near currently occupied areas) could facilitate dispersal and create large habitat blocks

Individual, affiliation and date comment was received	Summarized comments
Marianne Korosy, Florida Audubon, Nov. 30, 2015	- Expressed support for the proposed action
Wendy Poag, Lake Co. Parks and Trails, Dec. 1, 2015	<ul style="list-style-type: none"> - Expressed support for proposed action - Expressed support for additional scrub jay management areas
Doria Gordon, The Nature Conservancy, Dec. 3, 2015	<ul style="list-style-type: none"> - Expressed support for the proposed action - Emphasized the importance of scrub-jay habitat connectivity, habitat distribution across the forest and using fire to maintain habitat - Suggested that the spatial arrangement and patch size of newly cut or burned scrub should be considered to avoid creating large areas of non-breeding habitat - Suggested that the proposed action should include monitoring to evaluate the effects of management activities and habitat changes on scrub-jays
Jay Herrington, US Fish and Wildlife Service, North Florida Ecological Services Office, Dec. 4, 2015	<ul style="list-style-type: none"> - Expressed support for the proposed action - Stated that “The Forest is the most essential area for the long-term persistence and recovery of the species [Florida scrub-jay].”
Karl Miller, Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, Dec. 7, 2015	<ul style="list-style-type: none"> - Expressed support for the proposed action - Provided information regarding scrub-jay population size and isolation in relation to the proposed MA 8.4 areas. Specifically suggested that Compartments 38 and 39 could be added to the proposed MA 8.4 areas to improve habitat distribution.

Individual, affiliation and date comment was received	Summarized comments
Bradley Gruver, Florida Fish and Wildlife Conservation Commission, Dec. 7, 2015	<ul style="list-style-type: none">- Provided comments as technical assistance from FWC under Chapter 379, Florida Statutes- Expressed support for the proposed action- Suggested that the proposed additions to MA 8.4 and revised desired conditions would “increase the amount of habitat for scrub-jays and improve the quality of this habitat.”
Robin Lewis, Save Our Big Scrub, Inc., Dec.13, 2015	<ul style="list-style-type: none">- Expressed support for the proposed action- Expressed preference for prescribed fire “as the primary tool to manage these reassigned lands instead of just roller chopping and assuming this provides the same habitat value.”- Expressed interest in working with the Ocala National Forest on implementation

APPENDIX 2. CHANGES TO AREAS PROPOSED FOR DESIGNATION AS MA 8.4

The following changes were made to the proposed MA 8.4 areas between the scoping proposal and the proposed action analyzed above. Detailed maps of the areas are below.

Northern: scoping & final – 3,402 acres. No changes between scoping and current proposal.

Norwalk: scoping & final – 2,561 acres. No changes between scoping and current proposal.

Bear Creek: scoping – 1,553 acres; final – 1,576 acres. *Reason for change:* Minor acreage added due to inconsistencies in ecosystem layers.

Lake Kerr: scoping – 1,739 acres; final – 3,913 acres. *Reason for change:* Added major portion in response to input from Karl Miller (FWC) and to balance acres subtracted elsewhere in proposal. Area added contained collection of stands that were among most isolated from suitable habitat as determined by Karl Miller.

Mud Lake: scoping – 1,902 acres; final – 1,122 acres. *Reason for change:* Removed areas south of CR 314 due to burning-WUI concerns. Removed areas on east side of proposed MA because there was overlap with some MA 3.1 (Special Interest Area; Mud Lake).

Hopkins: scoping – 11,200 acres; final – 9,764 acres. *Reason for change:* Difference is due to the acreage of the 4.2 MA that is embedded within the Hopkins MA being removed in the final version. By the time the scoping proposal went out, we had already discussed that the embedded MAs (also see the Bombing Range East MA) should be left alone, but the maps in the scoping proposal had these areas as being part of the proposed new 8.4.

Hughes Island: scoping & final – 3,071 acres (currently in MA 8.4 – 999 acres). No changes between scoping and current proposal.

Mill Dam: scoping – 3,634 acres; final – 1,451 acres. *Reason for change:* Final version eliminated areas in MA 3.1 (Special Interest Area; North Prairie) and MA 4.2 (North Prairie & Zay Prairie), plus entire northern section due to WUI and fire containment concerns.

Lake Mary: scoping – 6,338 acres; final – 5,994 acres. *Reason for change:* Removed some areas in north that were sandhill.

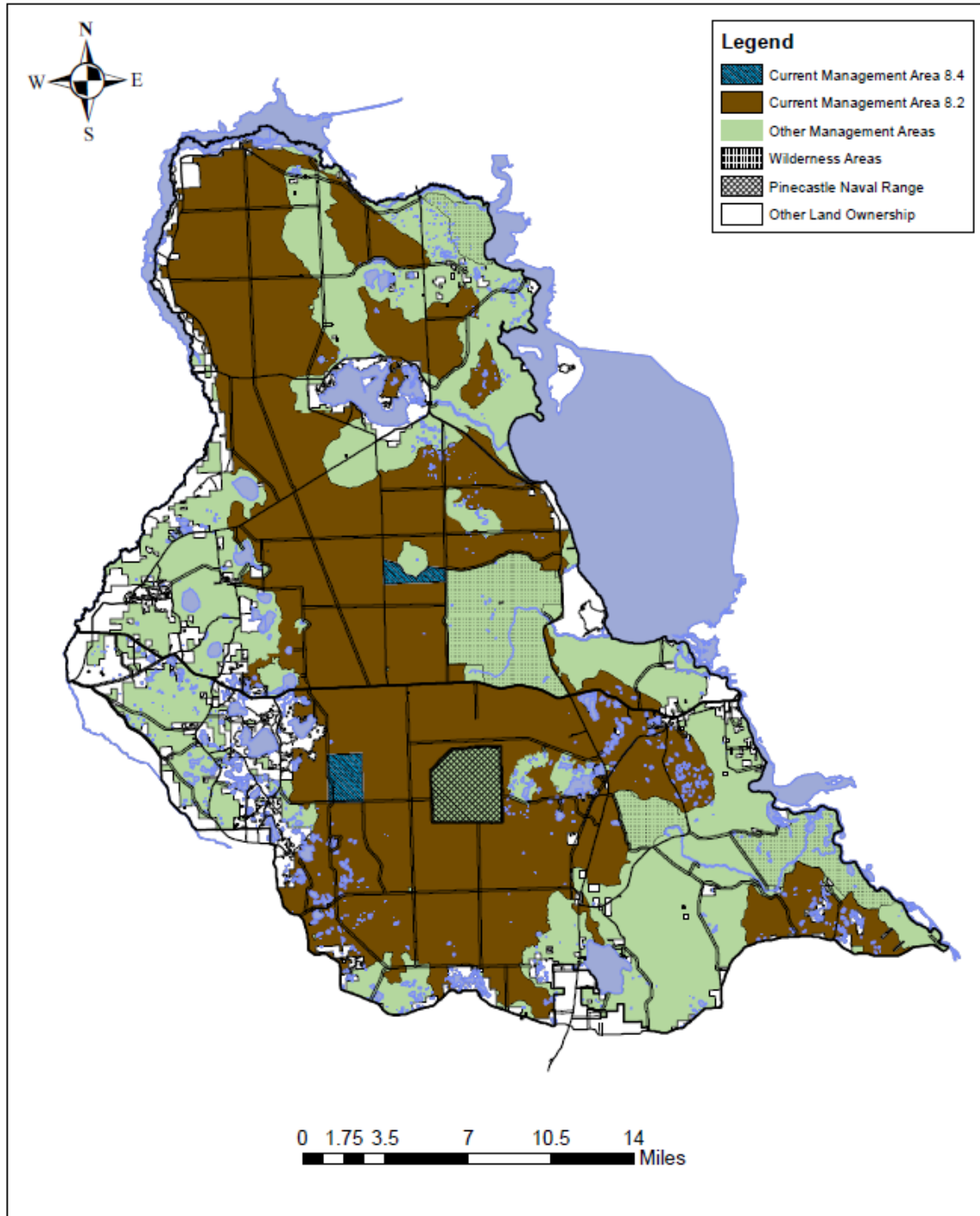
Southern: scoping & final – 4,677 acres (currently in MA 8.4 – 1,874 acres). No change between initial and and current proposal.

Bombing Range East: initial – 7,551 acres; final – 4,874 acres. *Reason for change:* Removed areas that were in MAs 4.2 (Farles Prairie) and 4.4 (Sellers Lake Area); see Hopkins discussion.

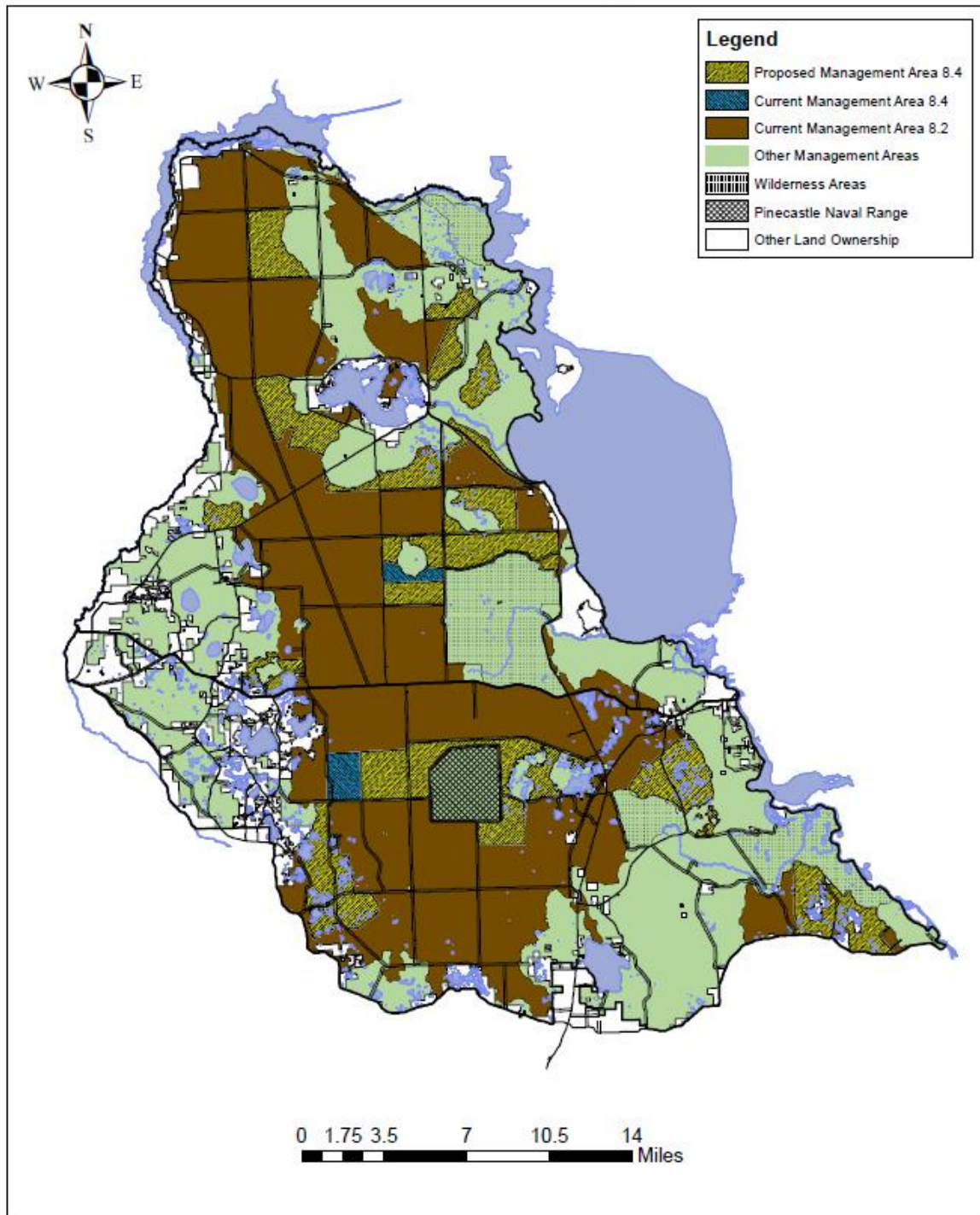
Boyd Lake: scoping – 5,372 acres; final – 4,661 acres. *Reason for change:* Habitat suitability (removed areas that were ground-truthed and had yellow pine) and squaring off to roads for better burn containment. Final version has scattered areas of scrub in the southern part of the MA.

Bilderback: initial – 5,692 acres; final – 4,777 acres. *Reason for change:* Removed private land; removed unsuitable ecosystems/WUI concerns.

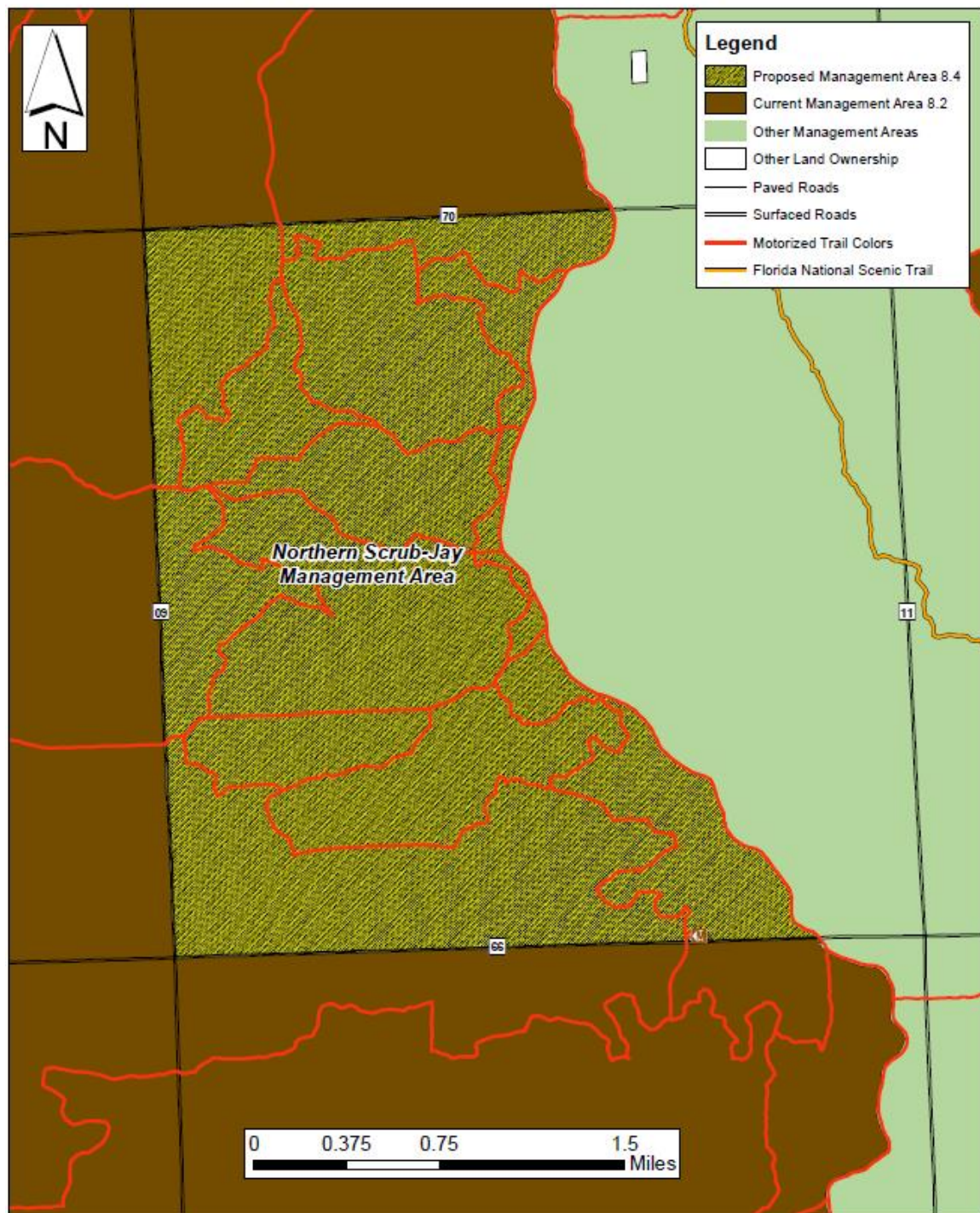
Map 1. Current Extent of Management Area 8.4



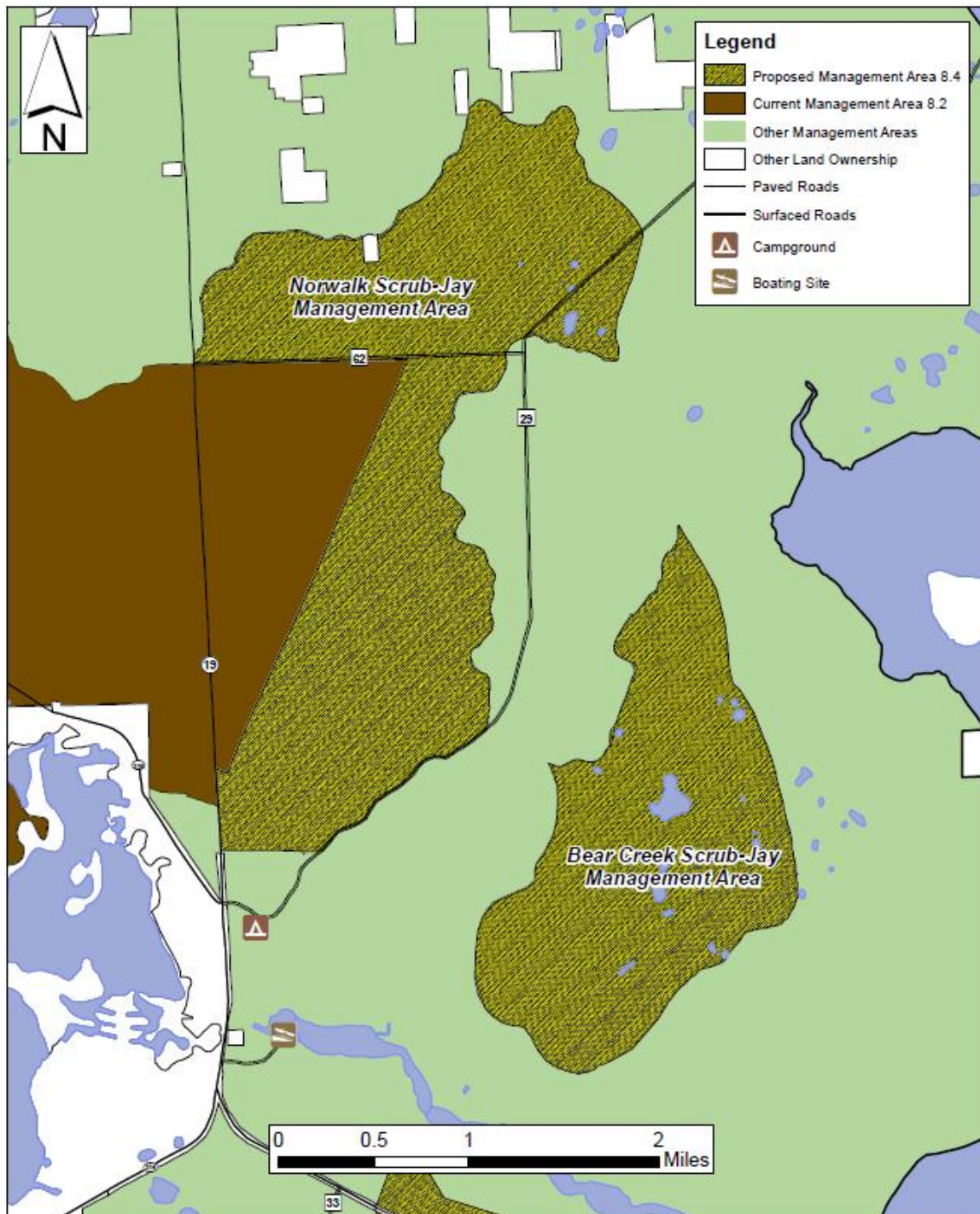
Map 2. Proposed Extent of Management Area 8.4



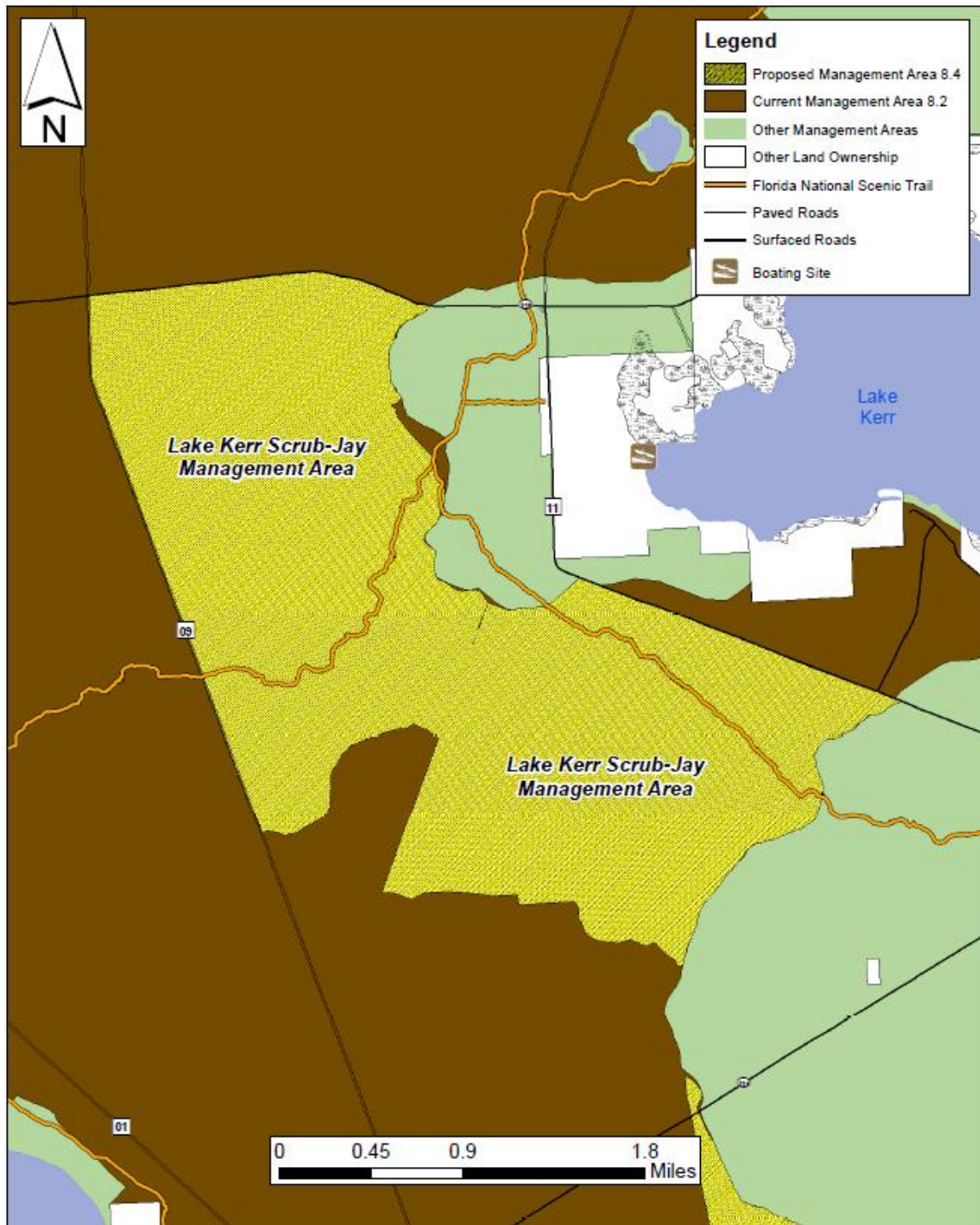
Map 3. Proposed Northern Scrub-Jay Management Area



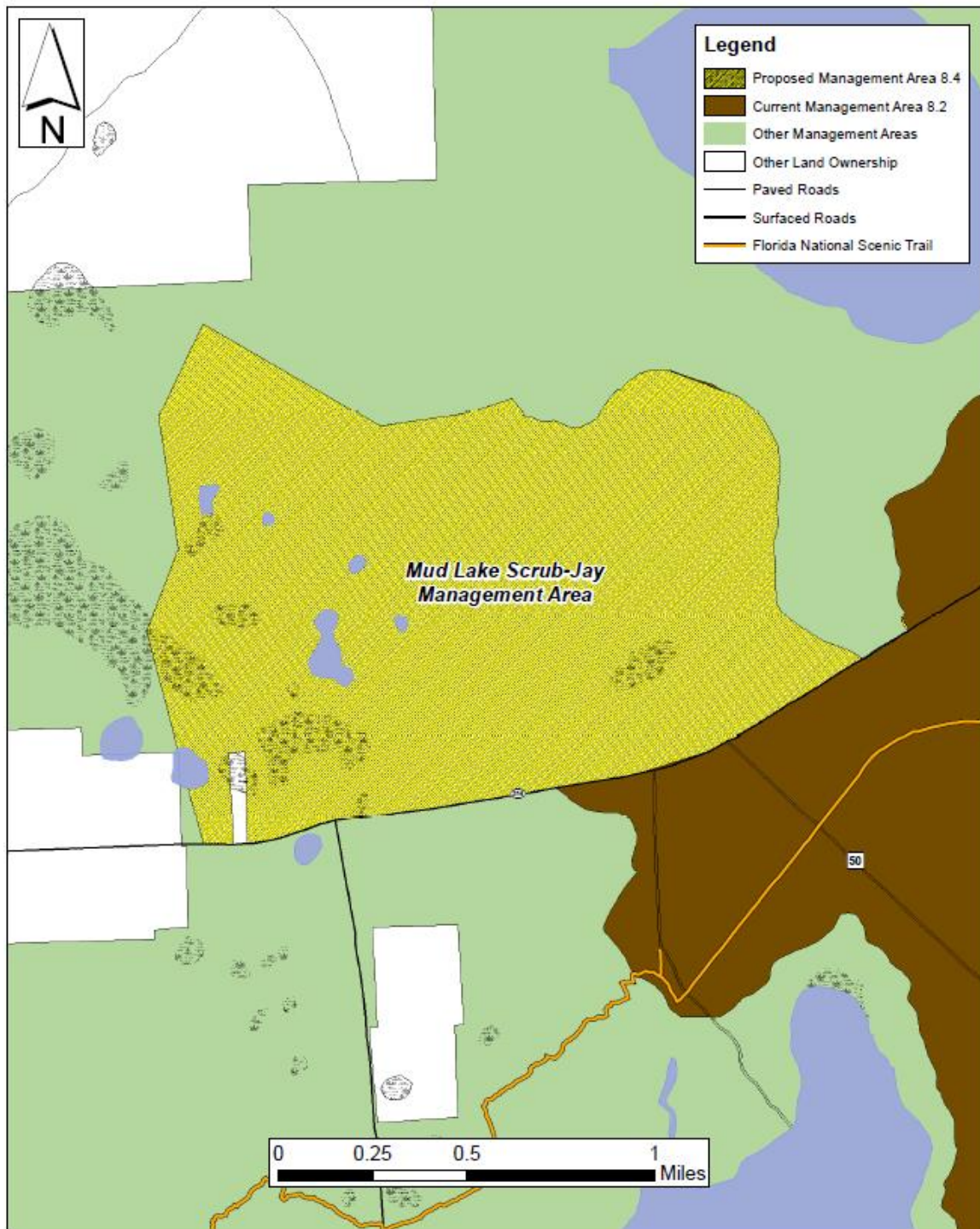
Map 4. Proposed Norwalk and Bear Creek
Scrub-Jay Management Areas



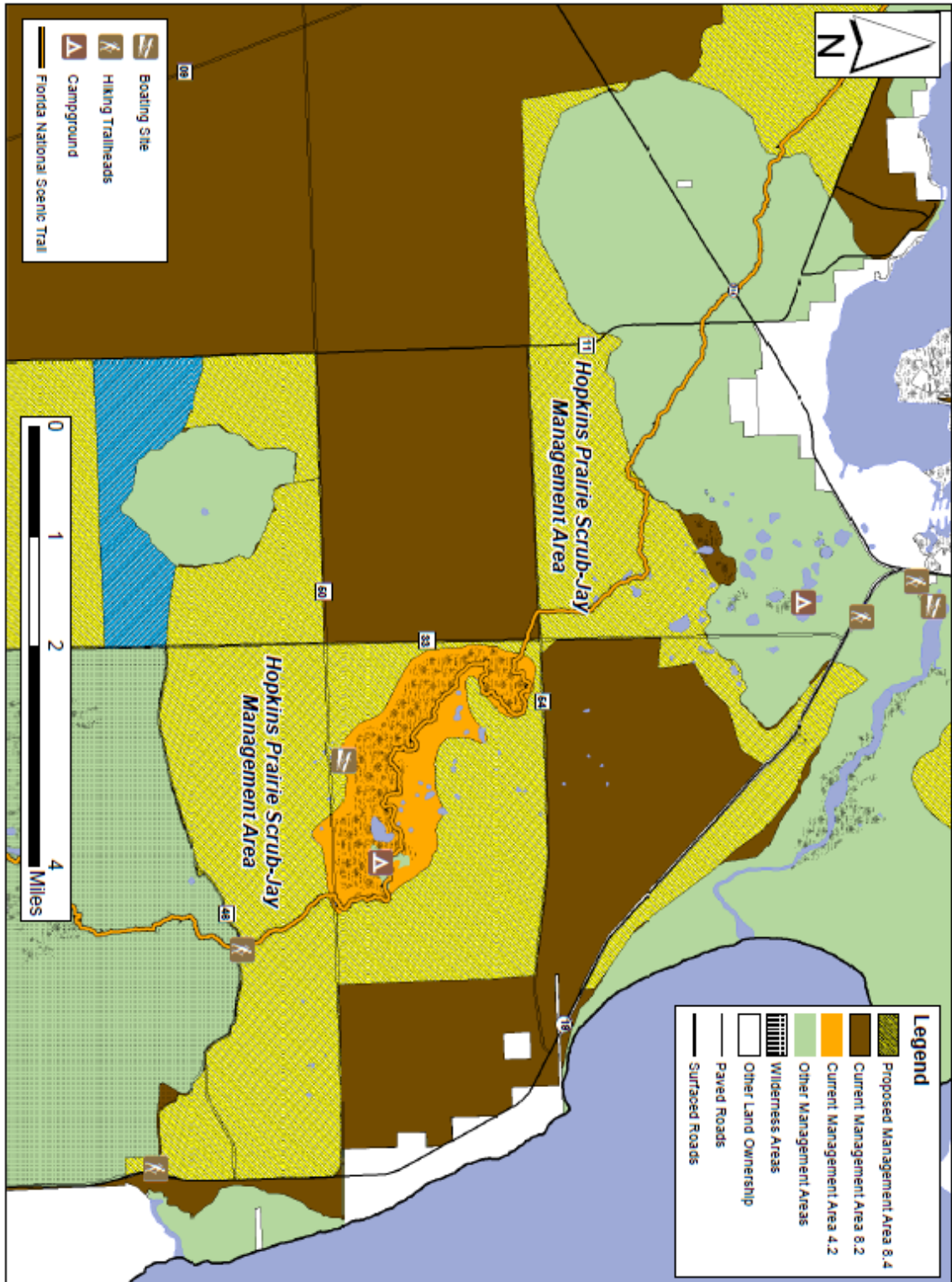
Map 5. Proposed Lake Kerr Scrub-Jay Management Area



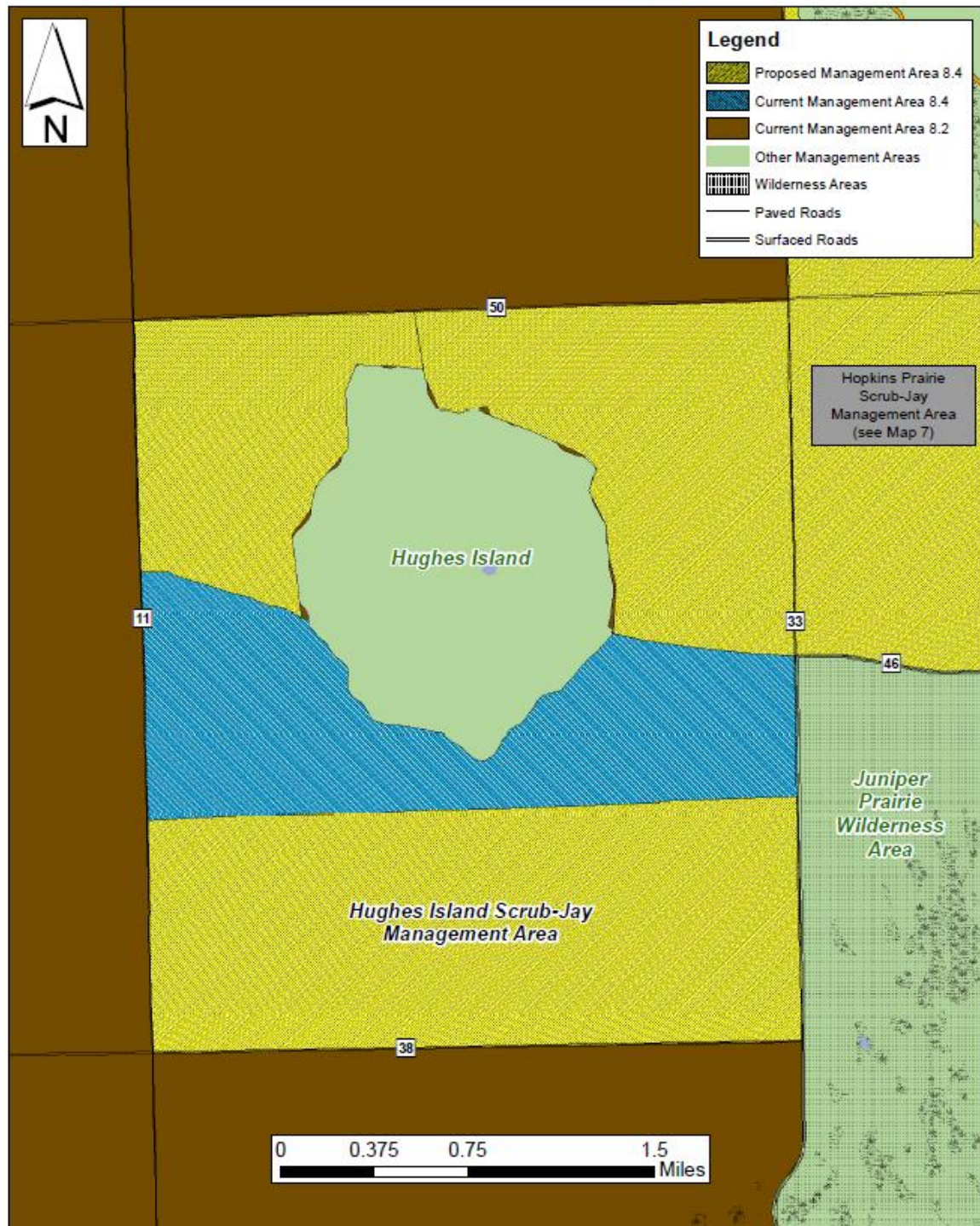
Map 6. Proposed Mud Lake Scrub-Jay Management Area



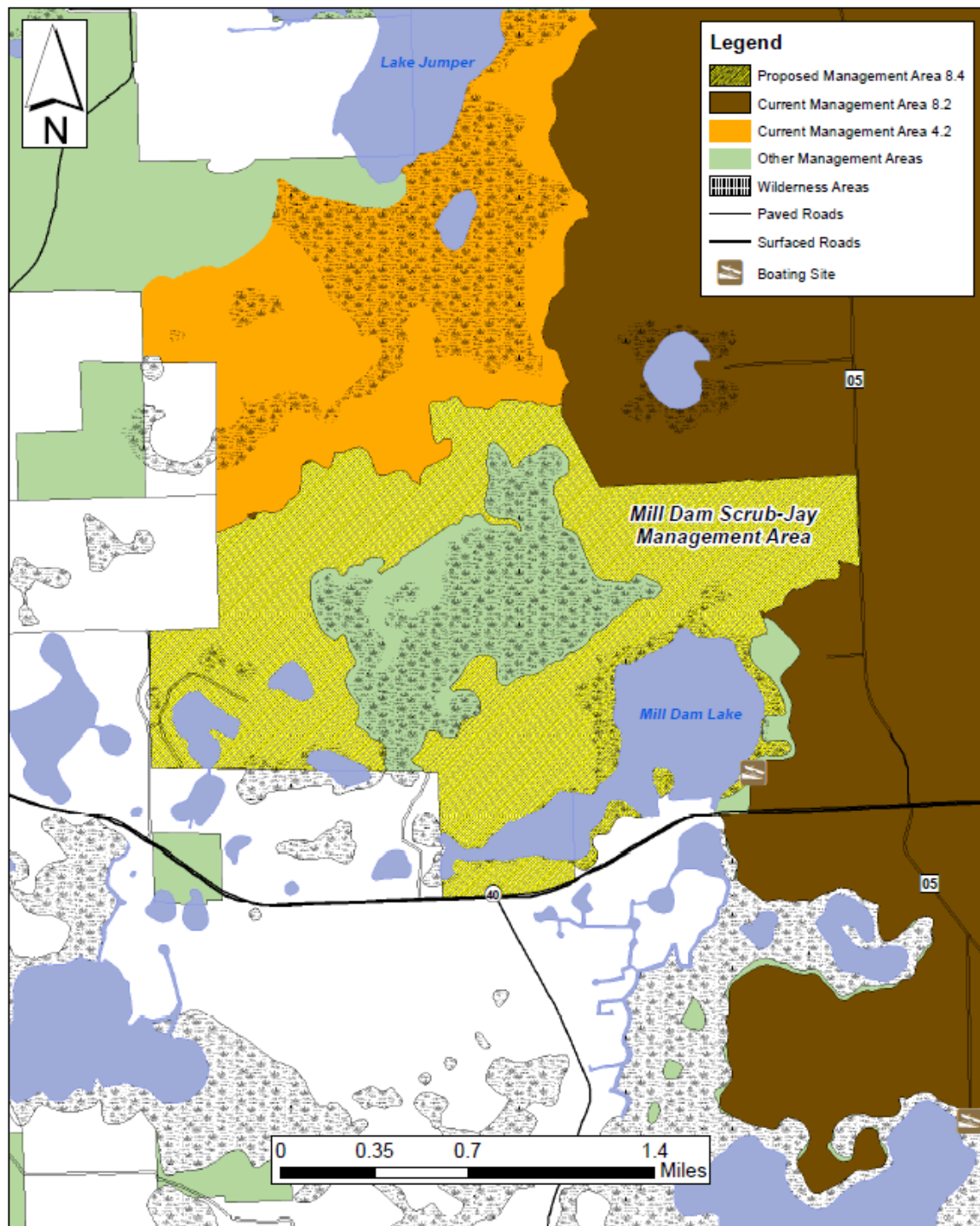
Map 7. Proposed Hopkins Prairie Scrub-Jay Management Area



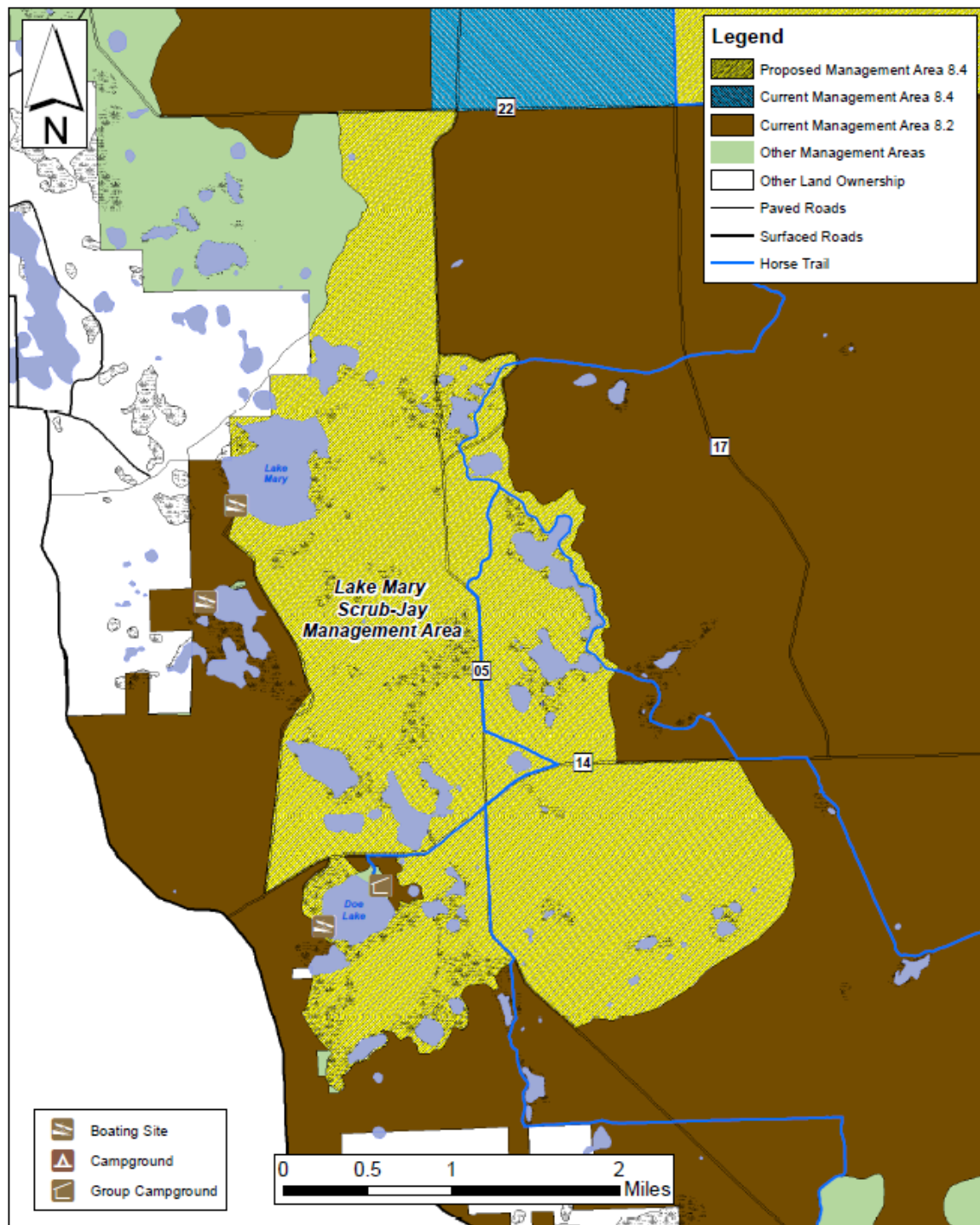
Map 8. Proposed Hughes Island Scrub-Jay Management Area



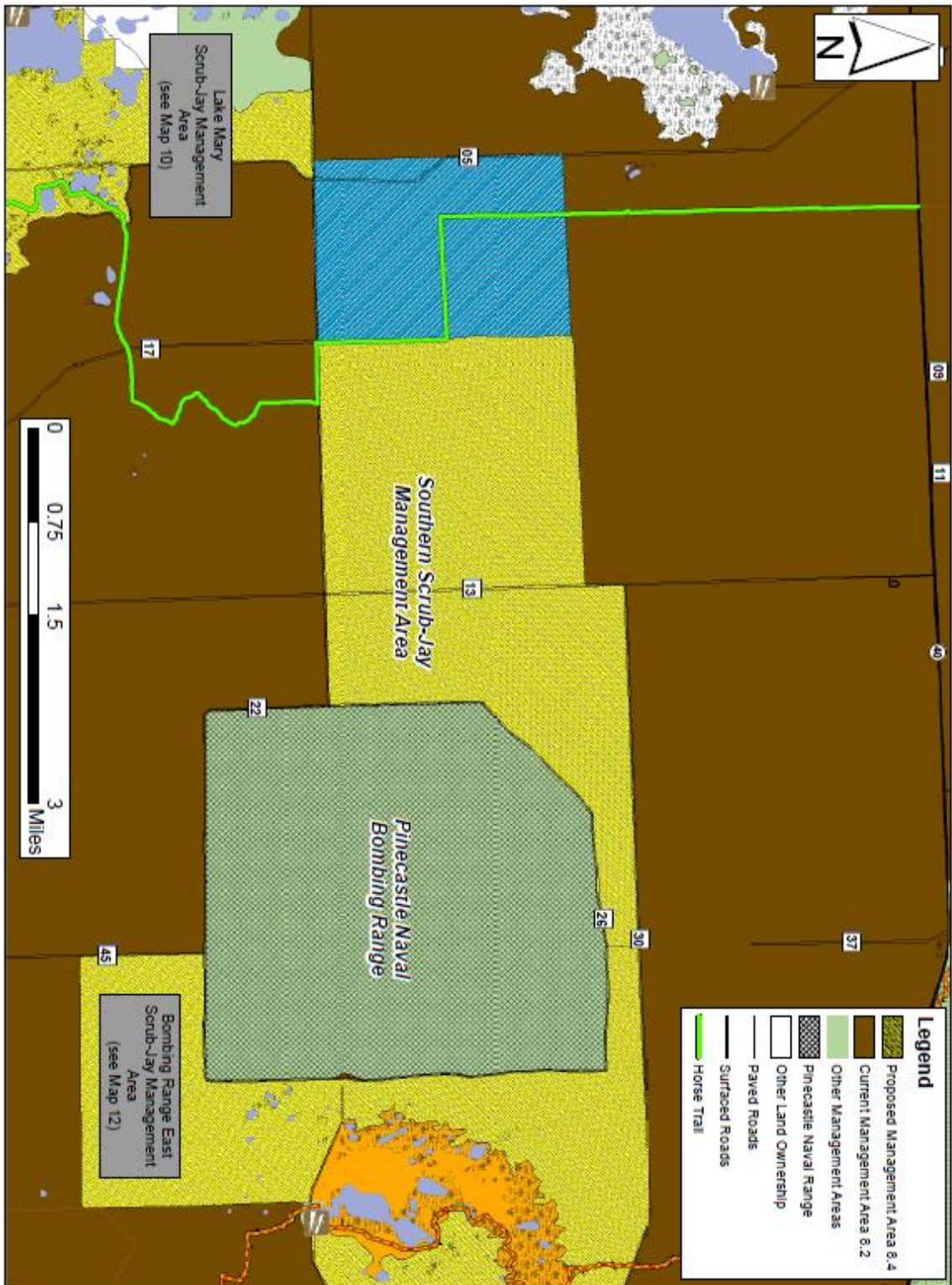
Map 9. Proposed Mill Dam Scrub-Jay Management Area



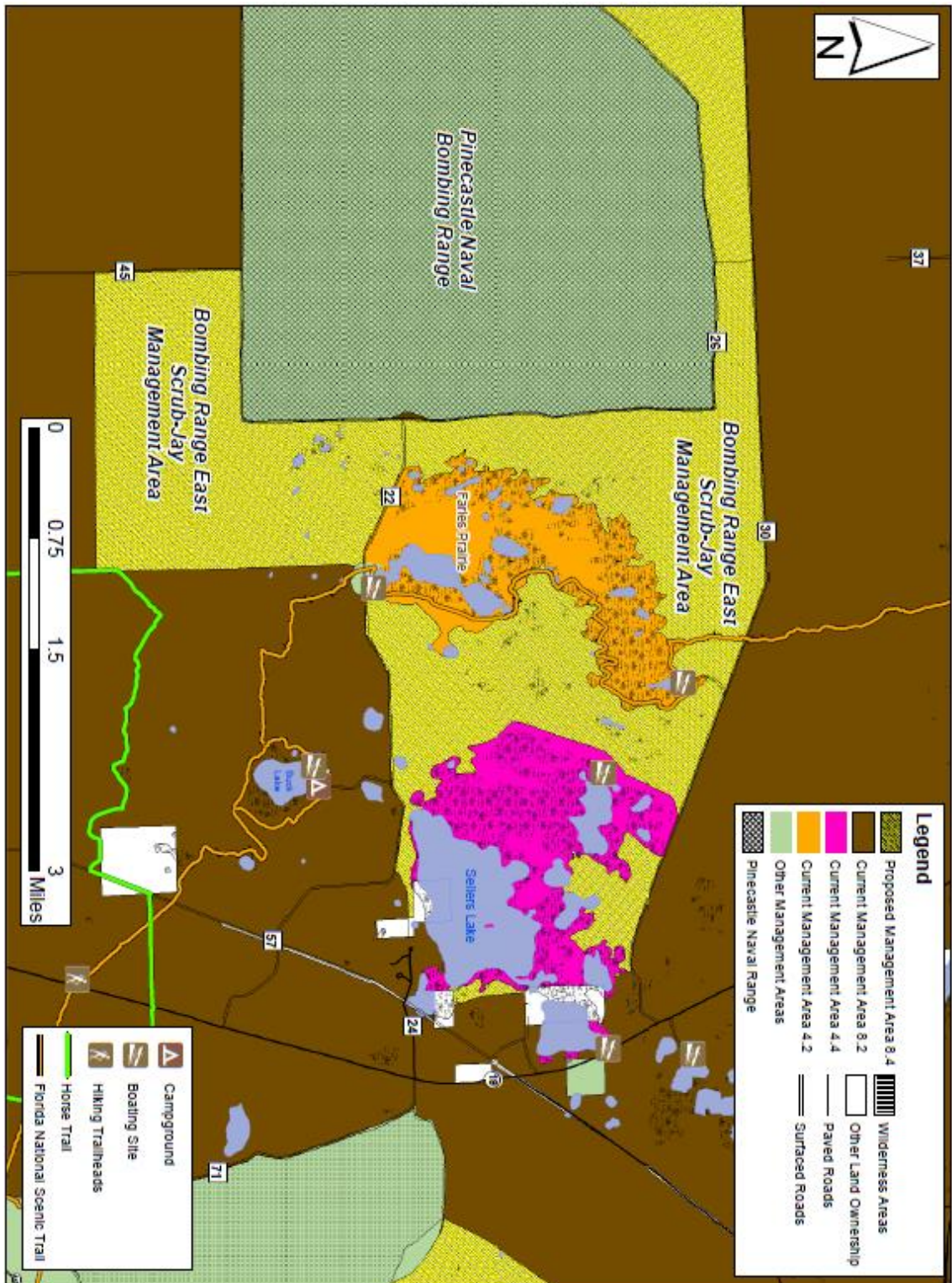
Map 10. Proposed Lake Mary Scrub-Jay Management Area



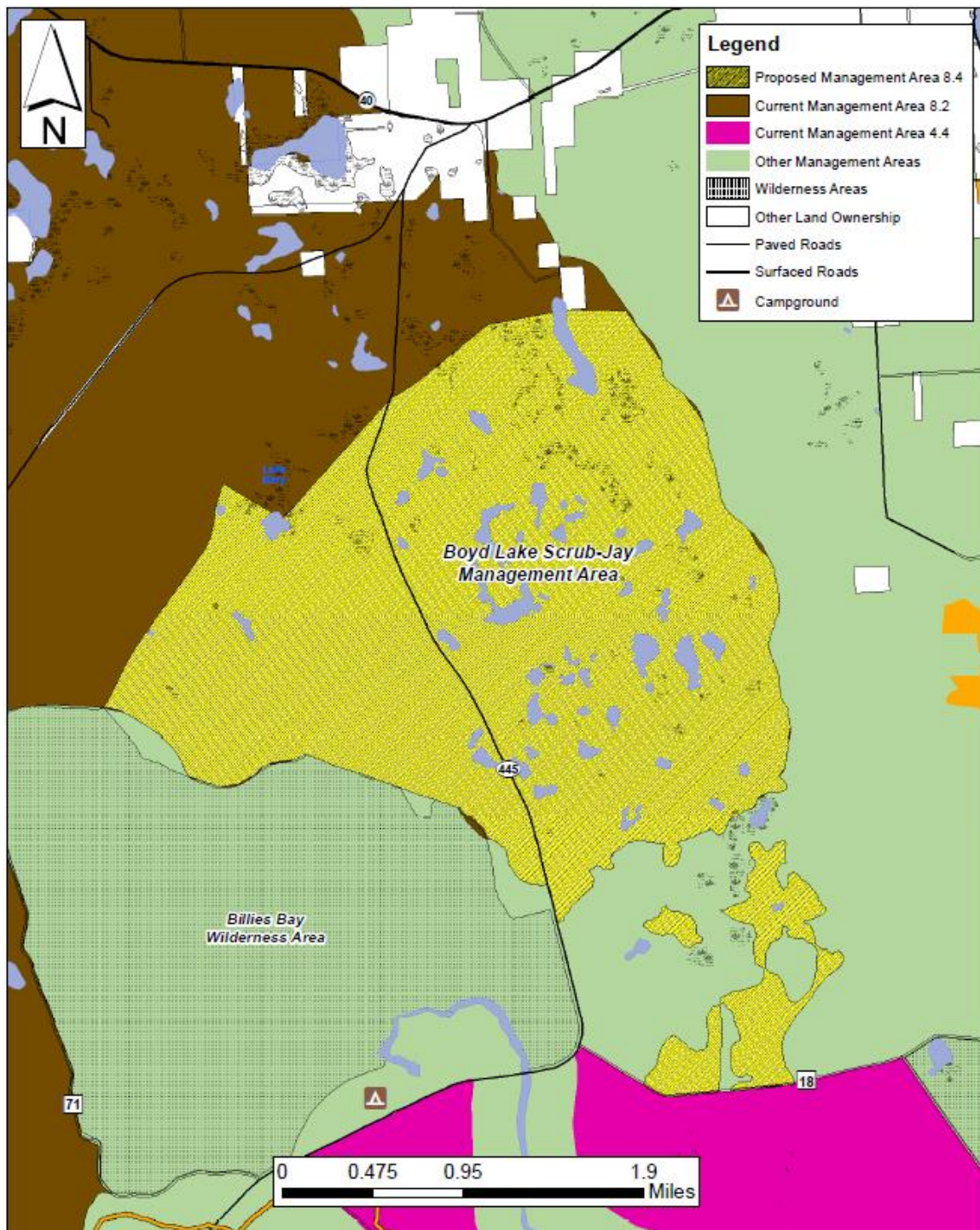
Map 11. Proposed Southern Scrub-Jay Management Area



Map 12. Proposed Bombing Range East Scrub-Jay Management Area



Map 13. Proposed Boyd Lake Scrub-Jay Management Area



Map 14. Proposed Bilderback Scrub-Jay Management Area

